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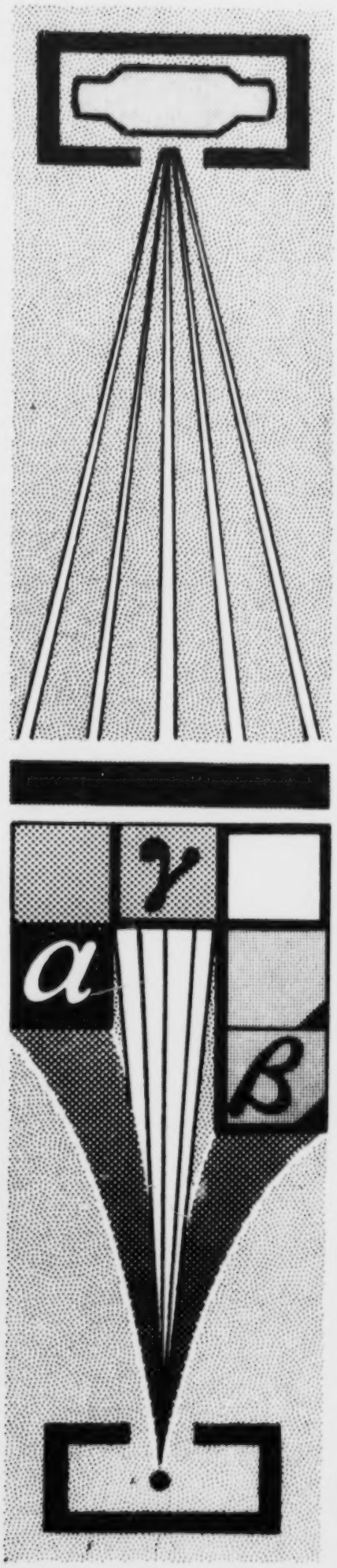

A SYSTEM for the REGISTRATION of RADIATION SOURCES

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U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service

87

MEDICAL AND OCCUPATIONAL RADIATION PROGRAM

Technical Reports

The following technical reports issued by the Medical and Occupational Radiation Program are available through the Office of Information, National Center for Radiological Health, Public Health Service, U.S. Department of Health, Education, and Welfare, Rockville, Maryland 20852:

MORP 67-1	X-ray Emission from Shunt Regulator Tubes for Color Television Receivers
MORP 67-2	Radium Disposal Project
MORP 67-3	Radium Source Integrity Testing Progress Report
MORP 67-4	Design of Interlocked Radium Shipping Container
MORP 67-5	A Summary Report on X-ray Diffraction Equipment
MORP 67-6	Georgia Radium Management Project . . . Phase II
MORP 67-7	Decontamination Study of a Family Dwelling Formerly Used for Radium Processing (Preliminary Copy)
MORP 68-1	A Collection of Radium Leak Test Articles
MORP 68-2	Recommendations for the Safe Operation of Particle Accelerators
MORP 68-3	A System for the Registration of Radiation Sources
MORP 68-4	Medical Surpak Summary Report (Preliminary Copy)
MORP 68-5	The Use of Radium in Consumer Products (Preliminary Copy)

MORP 68-3

A SYSTEM for the REGISTRATION of RADIATION SOURCES

by
Lois A. Miller
X-RAY SECTION
MEDICAL and OCCUPATIONAL RADIATION PROGRAM

MARCH 1968

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service

Bureau of Disease Prevention and Environmental Control
National Center for Radiological Health
Rockville, Maryland 20852

FOREWORD

The Medical and Occupational Radiation Program, and its predecessor the State Assistance Branch, has been working the past few years with the State radiological health program to assist them in registration and inspection of radiation sources under their jurisdiction. This report describes an operational system for registering radiation sources utilizing automatic data processing equipment available in nearly all states.

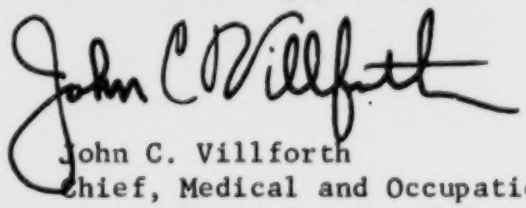
For their guidance and assistance in the development of this "System for the Registration of Radiation Sources," acknowledgment is given to:

Dr. Howard L. McMartin, Chief
Compliance and Control Branch, NCRH

Dr. George L. Crocker, formerly Deputy Chief
Compliance and Control Branch, NCRH

Data Systems and Mathematics Section,
Technical Services Branch, NCRH

Radioactive Materials Section,
Medical and Occupational Radiation Program, NCRH



John C. Villforth
Chief, Medical and Occupational
Radiation Program

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INTRODUCTION

In order to ensure the successful initiation and continued progress of a state radiological health program, it is essential to maintain a complete and current register of radiation sources. The development of such a project can be difficult and time-consuming. Thus, this "System for the Registration of Radiation Sources" was developed by the X-ray Section, Medical and Occupational Radiation Program, National Center for Radiological Health, as a guide for state radiological health programs in their efforts to establish a complete register of sources. A project of this type should be divided into four distinct phases: Phase I - Administrative Decisions, Phase II - Program Design, Phase III - Field Implementation, and Phase IV - Data Utilization. Following is a discussion of each of these phases including a presentation of suggested forms, flow diagrams, and frequency distribution tables.

PHASE I - ADMINISTRATIVE DECISIONS

Project Purpose - The purpose of a registration of radiation sources project is to aid in developing comprehensive radiological health programs for the control of radiation equipment and materials. In order to plan comprehensive radiological health activities, program administrators must know the location and types of sources within their geographic area. Therefore, the first task is to identify these sources. Information about the type and character of installations will aid administrators in evaluating the magnitude of the problem and in determining inspection priorities.

Project Objectives - The objectives of a registration of radiation sources project are to identify the location, possessor, quantity, and type of each radiation source within the state. From this information the scope of the state radiological health problem can be defined and control measures instituted.

Project Method - The method by which registration information is obtained will depend primarily on the equipment, funds, and personnel available to the radiological health program. Based on these factors, an estimated time schedule for the registration activity can be established, including initiation and termination dates. The type of approach to be used should also be considered at this time. The Registration of Radiation Sources System described herein has been designed to include two facets--an Inquiry Card contact and a Registration Form (Data Report Form) contact. This method was selected in order to screen and categorize all potential users as possessors or non-possessors of radiation sources. The two-phase approach is also conducive to the early return and efficiency of screening data, thereby expediting the actual registration of installations.

Advisory Committee Contact - The State Advisory Committee on Radiation should be contacted prior to initiation of a registration project. Its support and guidance can be of prime importance to the success of such a project.

PHASE II - PROJECT DESIGN

Staff Determination, Procurement, and Orientation - Once administrative decisions regarding the purpose, objectives, and methodology of the project have been made, technical and clerical personnel needs must be determined; personnel must then be procured and oriented. Available funds and equipment, as well as desired time schedules, are factors which must be considered in making these decisions.

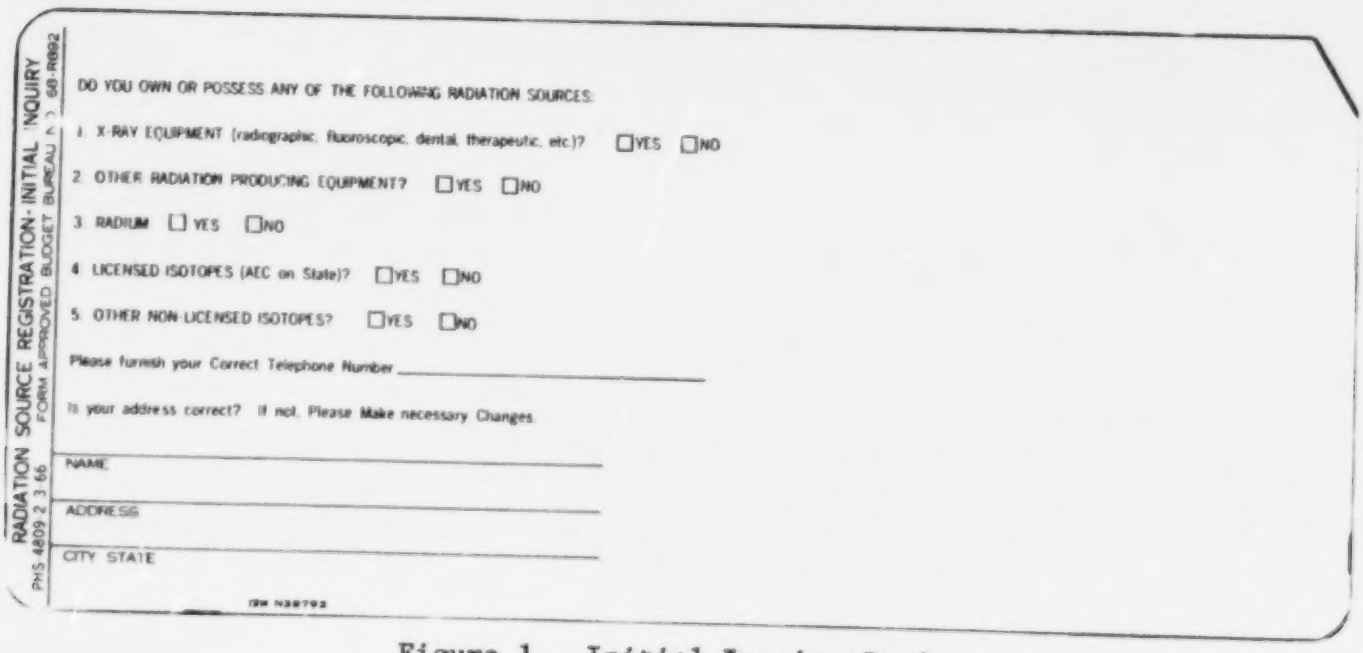
Professional Groups Contact - The sanction of appropriate professional societies is an invaluable aid in obtaining maximum cooperation of the professional disciplines during the registration of radiation sources. These groups should be made aware of the purpose, objectives, and initiation and desired termination dates of the registration activity. Advance publicity by the societies can be a major stimulus to early return of registration information.

Logistics - The complete Field Implementation phase of the registration of radiation sources system should be designed and documented from start to finish at this time. This procedure will establish the equipment needed for files maintenance, the forms to be utilized, and the record system desired. At this time, all possible information sources should be contacted to establish a list of potential users. These sources may include state boards of licensing and certification; state departments of labor and/or occupational health; state affiliates of professional societies, such as the American Medical Association, American Dental Association, American Chiropractic Association, International Chiropractors Association, American Podiatry Association, American Veterinary Medical Association; and other sources, such as educational institutions and the Atomic Energy Commission. Once the complete list of potential users has been established, it is advisable to maintain a desk record of the status of each potential user contacted for use in answering telephone inquiries, recording dates of follow-up contact, and writing monthly status reports.

PHASE III - FIELD IMPLEMENTATION

Following Phases I and II of the registration project in which we have determined the system to be used for registering all sources, developed a plan of operation, prepared all forms, correspondence, etc., the Field Implementation phase of the project can begin.

Inquiry Card Contact - The Initial Inquiry Card (Figure 1) is used to screen the potential users of radiation into two groups--those who possess radiation sources and those who do not. This first contact serves as a notification to all disciplines of the existence of a registration project in the state and informs them of the agency responsible for this function. By categorizing the potential users into two groups and sending the registration forms only to the prospective registrants, it is possible to save both time and money. This Initial Inquiry Card was designed on a data punch card for immediate automatic processing on return. The questions on this card require only a yes/no check. The card with an accompanying introductory letter (Page 63) is mailed to all potential users. The Initial Inquiry Coding Record (Figure 2) is coded by program personnel using codes indicated in the Initial Inquiry Card Coding and Punching Instructions (Page 73). The information from this record is punched on data cards to produce a mailing list and address labels for all correspondence. In addition, the information for categorizing the potential users into "yes" source and "no" source groups is punched from this record.


RADIATION SOURCE REGISTRATION- INITIAL INQUIRY
PHS 4809 2 3 66 FORM APPROVED BUDGET BUREAU NO. 68-R092

DO YOU OWN OR POSSESS ANY OF THE FOLLOWING RADIATION SOURCES:

1. X-RAY EQUIPMENT (radiographic, fluoroscopic, dental, therapeutic, etc.)? ☐YES ☐NO
2. OTHER RADIATION PRODUCING EQUIPMENT? ☐YES ☐NO
3. RADIUM ☐YES ☐NO
4. LICENSED ISOTOPES (AEC or State)? ☐YES ☐NO
5. OTHER NON-LICENSED ISOTOPES? ☐YES ☐NO

Please furnish your Correct Telephone Number _____

Is your address correct? If not, Please Make necessary Changes

NAME

ADDRESS

CITY STATE

IBM N38792

Figure 1. Initial Inquiry Card

RADIATION SOURCE REGISTRATION PROGRAM
CODING RECORD

CARD 1.

1. Registration Number (Leave field blank for future use) 1 2 3 4 5 6

2. Identification Number 7 8 9 10 11 12

3. Card Identification 13

4. Last Name, First Name & Middle Initial *(Be sure to code the comma after the last name).*

14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33

5. Title 34

6. Address: *Street No. & Name*

35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55

7. City & State

56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72

8. Zip Code 73 74 75 76 77

9. Type of Use or Practice 78

10. Do you own or possess any of the following radiation sources:

A. X-RAY EQUIPMENT
B. OTHER RADIATION PRODUCING EQUIPMENT
C. RADIUM
D. LICENSED ISOTOPES
E. OTHER NON-LICENSED ISOTOPES

79

11. Multiple Line Print 80

PHS-4809-1
2-66

Figure 2. Coding record for initial inquiry card.

Registration Form Contact - The Data Report Form (Registration Form) (Page 7), when mailed to the owner, should be accompanied by a letter (Page 64), an instruction sheet (Page 9), and a copy of the state radiation regulations. Since many of the registrants will possess sources in more than one facility, it is suggested that at least two sets of forms be sent to all registrants. Prior to mailing, the registrant's identification number should be placed on each form for complete identification when the forms are returned. The instruction sheet is for the use of the registrant in completing the Data Report Form. Definitions have been included on this sheet to aid in the interpretation of each item. The Coding and Punching Instructions (Page 76) for coding the information on the Data Report Form are for the use of personnel in the radiological health office. Data from the returned report forms should be recorded and edited for completeness. Registration numbers should be assigned, and forms disassembled and distributed as indicated in the activity narrative (Page 31). A three-copy form is suggested--the original (signature) copy should be maintained in a permanent file, the second copy can be for office or automatic data processing utilization and for field work, and the third copy should be returned to the registrant as official notice of registration. Form letter No. 5 (Page 68) and a Change of Status Card (Page 69) should accompany the third copy. When compatible in the identification areas with state survey forms, the Data Report Form can be incorporated into a system in which all information collected from an individual facility--registration, survey or inspection, follow up, and resurvey--is contained in a single data file.

Following the sample Registration Form and instruction sheet is a flow chart of an automated registration system (Page 11). The flow chart is a complete step-by-step diagram of activities handled by both the responsible program personnel and the data processing personnel. The activity boxes are numbered alphanumerically to designate who performs each activity--the Program (A) or the Data Processing Section (B). It is extremely important to screen the Registration Forms thoroughly prior to keypunching and to keep in mind that many registrants will possess sources in more than one facility and that many registrants will have co-owners or will be co-owners of sources. Following the flow chart are samples of Data Processing Work Request Forms (Page 26) that might be used in this system. The Data Processing Section must be thoroughly briefed on the functions of the system, and instructions to them must be clear and concise.

A flow chart of a manually processed registration system is also included (Page 36) for those states that do not have automatic data processing equipment available and wish to use a manual system for their registration project.

RADIATION SOURCE REGISTRATION PROGRAM
DATA REPORT

OWNER OR POSSESSOR OF RADIATION SOURCES *(Last name, first, middle initial)*

LOCATION OF RADIATION SOURCES *(Number, street, city, county, state, zip code)*

PERSON TO CONTACT FOR FURTHER INFORMATION *(Last name, first, middle initial)*

Title: _____

DO NOT WRITE IN THIS SPACE

REGISTRATION NO. (1 2 3 4 5 6)

IDENTIFICATION NO. (7 8 9 10 11 12)

CARD NO. (13) DATE (14 15 16 17)

STATE (18 19) COUNTY (20 21 22) CITY (23 24 25 26)

ARE RADIATION SOURCES CO-OWNED?

(27) 1. ☐ YES 2. ☐ NO

If "YES," give name and address of co-owner(s)

NAME *(last)* *(first)* *(middle initial)*

ADDRESS *(Number, street, city, state, zip code)*

TYPE OF USE OR PRACTICE

(28)
1. ☐ Medical
2. ☐ Dental
3. ☐ Chiropractic
4. ☐ Osteopathy
5. ☐ Veterinary
6. ☐ Podiatry
7. ☐ Industry
8. ☐ Research
9. ☐ Other (specify) _____

SPECIALTY (SEE LISTING ON REVERSE)

(29-30) _____

PERSON RESPONSIBLE FOR RADIATION SAFETY

NAME *(last)* *(first)* *(middle initial)*

ADDRESS *(number)* *(street)* *(city)* *(state)* *(zip code)*

TYPE OF FACILITY

(31)
1. ☐ Private office
2. ☐ Hospital
3. ☐ Clinic
4. ☐ Mobile
5. ☐ Educational Institution
6. ☐ Industrial
7. ☐ Other *(specify)* _____

NUMBER OF X-RAY UNITS POSSESSED

A. RADIOGRAPHIC (32-33) _____
B. FLUOROSCOPIC (34-35) _____
C. R & F COMBINATION (36-37) _____
D. PHOTO FLUOROGRAPHIC (38-39) _____
E. TOTAL NO. OF TUBES (40-41) _____
F. X-RAY THERAPY (42-43) _____
G. DENTAL UNITS (44-45) _____

NUMBER OF INDUSTRIAL AND EDUCATIONAL UNITS POSSESSED

A. X-RAY DIFFRACTION UNITS (46-47) _____
B. ELECTRON MICROSCOPES (48-49) _____
C. PARTICLE ACCELERATORS (50-51) _____
D. NUMBER OF OTHER UNITS *(Specify)*
(Type) _____ *(Number)* _____
(Type) _____ *(Number)* _____
E. NUMBER OF FIXED UNITS (52-53) _____
F. NUMBER OF PORTABLE UNITS (54-55) _____

RADIOACTIVE MATERIALS POSSESSED

A. RADIUM (56) 1. ☐ YES 2. ☐ NO
B. NUMBER OF RADIUM SOURCES (57-59) _____
C. TOTAL ACTIVITY RADIUM SOURCES (60-64) _____ *(Milligrams)*
D. NUMBER OF TELETHERAPY APPARATUS (65-66) _____
E. NO. SOURCES USED IN INDUSTRIAL RADIOGRAPHY (67-68) _____
F. AEC OR STATE LICENSED ISOTOPES (69) 1. ☐ YES 2. ☐ NO
G. OTHER NON-LICENSED ISOTOPES (70) 1. ☐ YES 2. ☐ NO

OTHER RADIATION SOURCES *(Specify)*:

REGISTRATION DOES NOT IMPLY APPROVAL OR DISAPPROVAL OF THIS FACILITY NOR IS IT A LICENSE

To the best of my knowledge the above information is true and correct.

NAME *(Type or print)* | SIGNATURE

TITLE | DATE

PHS-4868-3
REV. 9-66

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
PUBLIC HEALTH SERVICE

FORM APPROVED:
BUDGET BUREAU NO. 68-R892

Figure 3. Registration Form to be completed by owner or possessor.

LISTING OF RADIATION SOURCE EQUIPMENT OWNED OR CO-OWNED			
TYPE	NUMBER OF UNITS	MANUFACTURER	MODEL
X-RAY UNITS			
OTHER RADIATION SOURCES			

X-RAY SPECIALTY (29-30)

MEDICAL:

01 - General Practitioner
02 - Multiple Specialities
03 - Chest Disease (Incl. Cardiology)
04 - Dermatology
05 - Ear, Nose & Throat
06 - Gynecology & Obstetrics
07 - Internal Medicine
08 - Neurology
09 - Occupational Medicine
10 - Ophthalmology
11 - Orthopedics
12 - Osteopathy
13 - Pediatrics
14 - Podiatry or Chiropody
15 - Radiology
16 - Surgery
17 - Urology
18 - Gastroenterology
19 - Hematology
20 - Allergy
21 - Physical Medicine
22 - Endocrinology
23 - Pathology
24 - Chiropractors
25 - Veterinary
26 - Hospitals
99 - Other

DENTAL:

01 - General
02 - Multiple Specialities
23 - Pathology
16 - Surgery
40 - Orthodontic
41 - Pedodontic
42 - Periodontic
43 - Prosthodontic
44 - Endodontic
99 - Other

INDUSTRIAL:

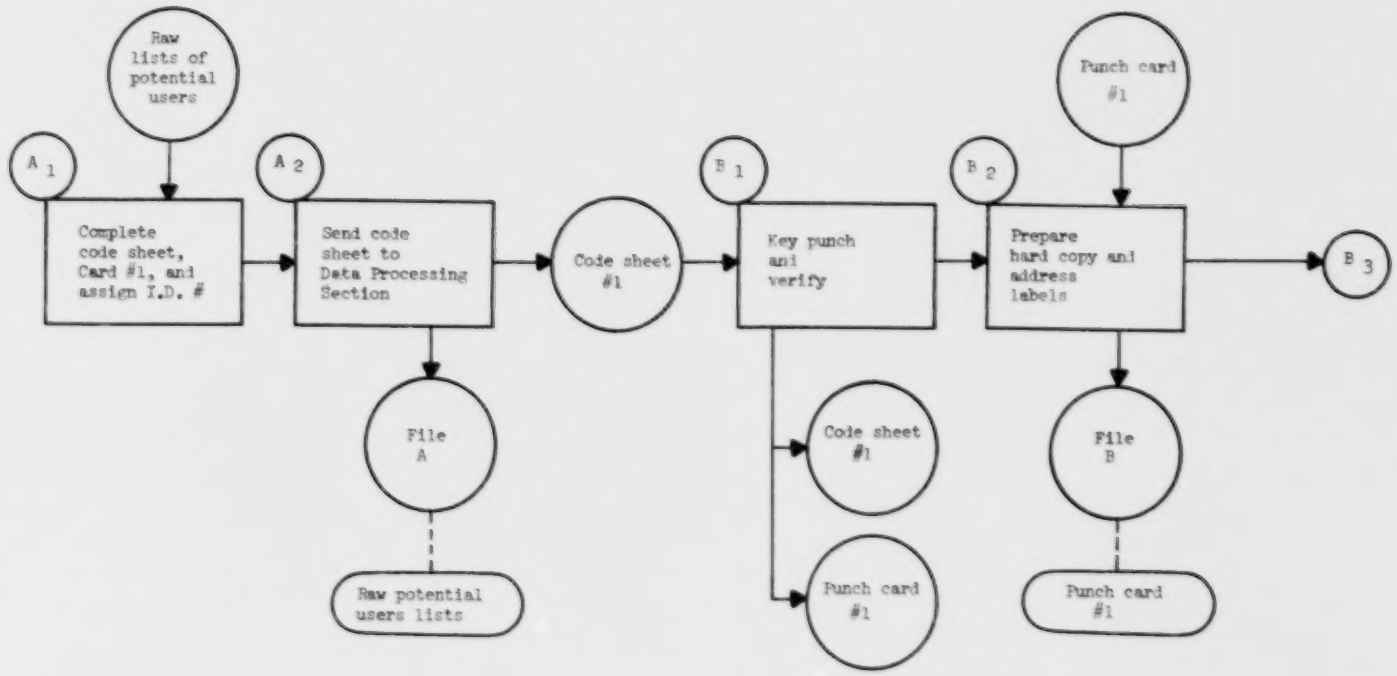
DATA REPORT FORM
INSTRUCTION SHEET

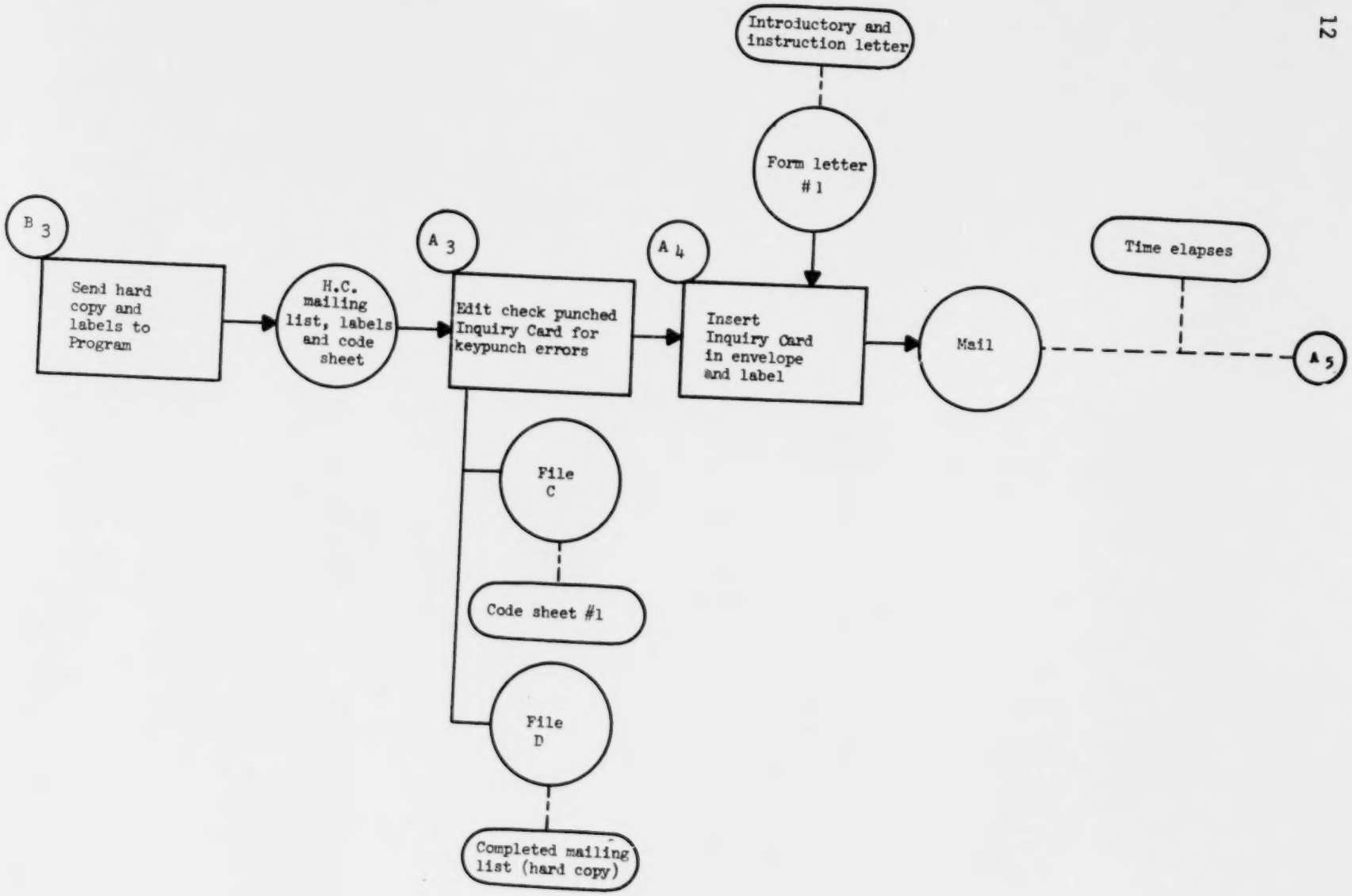
ITEM NO., ITEM	INSTRUCTIONS & DEFINITIONS
1. REGISTRATION NO., IDENTIFICATION NO., CARD NO., DATE, STATE, COUNTY & CITY CODES.	FOR ADMINISTRATIVE USE ONLY. DO NOT WRITE IN THESE BOXES
2. NAME OF OWNER OR POSSESSOR OF RADIATION SOURCES.	PLEASE PRINT THE NAME OF THE PERSON(S) WHO ARE: IN POSSESSION OF THESE RADIATION SOURCES EITHER BY LEASE OR PURCHASE; THOSE LEGALLY RESPONSIBLE FOR THE LOCATION OF SAID SOURCES. FOR HOSPITALS, EDUCATIONAL INSTITUTIONS OR INDUSTRIAL CORPORATIONS, PLEASE INSERT THE FULL NAME OF THE FACILITY.
3. LOCATION OF RADIATION SOURCES.	GIVE COMPLETE ADDRESS AND ROOM NUMBER OF THE FACILITY HOUSING THESE SOURCES.
4. CITY, COUNTY AND STATE	GEOGRAPHIC LOCATION OF RADIATION SOURCES.
5. NAME AND TITLE OF PERSON TO CONTACT FOR FURTHER INFORMATION.	REPORT THE NAME AND TITLE OF THE INDIVIDUAL WHO IS RESPONSIBLE FOR THE OPERATION OF THIS FACILITY. IF SAME AS POSSESSOR, WRITE SAME.
6. ARE THESE RADIATION SOURCES CO-OWNED?	CHECK APPROPRIATE ANSWER; LIST NAME AND ADDRESS OF ALL INDIVIDUALS WHO HAVE SHARES OF OWNERSHIP IN THESE SOURCES.
7. TYPE OF USE OR PRACTICE.	CHECK APPROPRIATE PRACTICE OR USE.
8. SPECIALTY.	IF THESE RADIATION SOURCES ARE USED IN THE HEALING ARTS, LIST THE MEDICAL SPECIALTY OF THE POSSESSOR. FOR INDUSTRIAL FACILITIES, REPORT THE TYPE OF PROCEDURES THESE SOURCES ARE BEING UTILIZED FOR.
9. PERSON RESPONSIBLE FOR RADIATION SAFETY.	LIST THE NAME, TITLE & ADDRESS OF THE PERSON RESPONSIBLE FOR THE RADIATION SAFETY OF THIS FACILITY. IF SAME AS POSSESSOR, WRITE SAME.
10. TYPE OF FACILITY.	CHECK THE APPROPRIATE ITEM DESCRIBING THIS FACILITY. CLINIC: TWO OR MORE PRACTITIONERS WHO SHARE A PATIENT. OTHERWISE, THESE ARE ONLY AN AGGREGATE OF PRIVATE PRACTICE PRACTITIONERS. HOSPITAL: A FACILITY WHERE THERE ARE INPATIENTS. UNDER THIS IS ALSO INCLUDED "HOSPITAL CLINICS" HANDLING OUTPATIENT WORK.

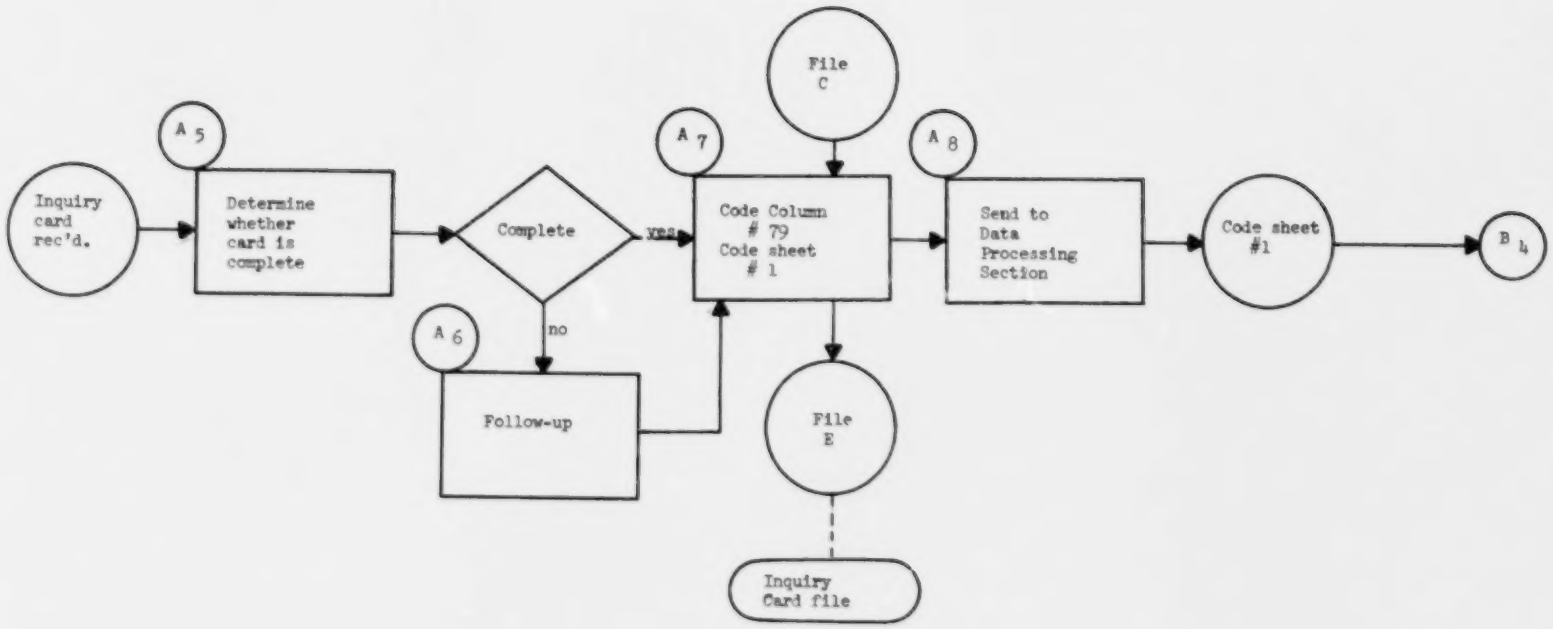
Figure 4. Instruction sheet sent to owner or possessor.

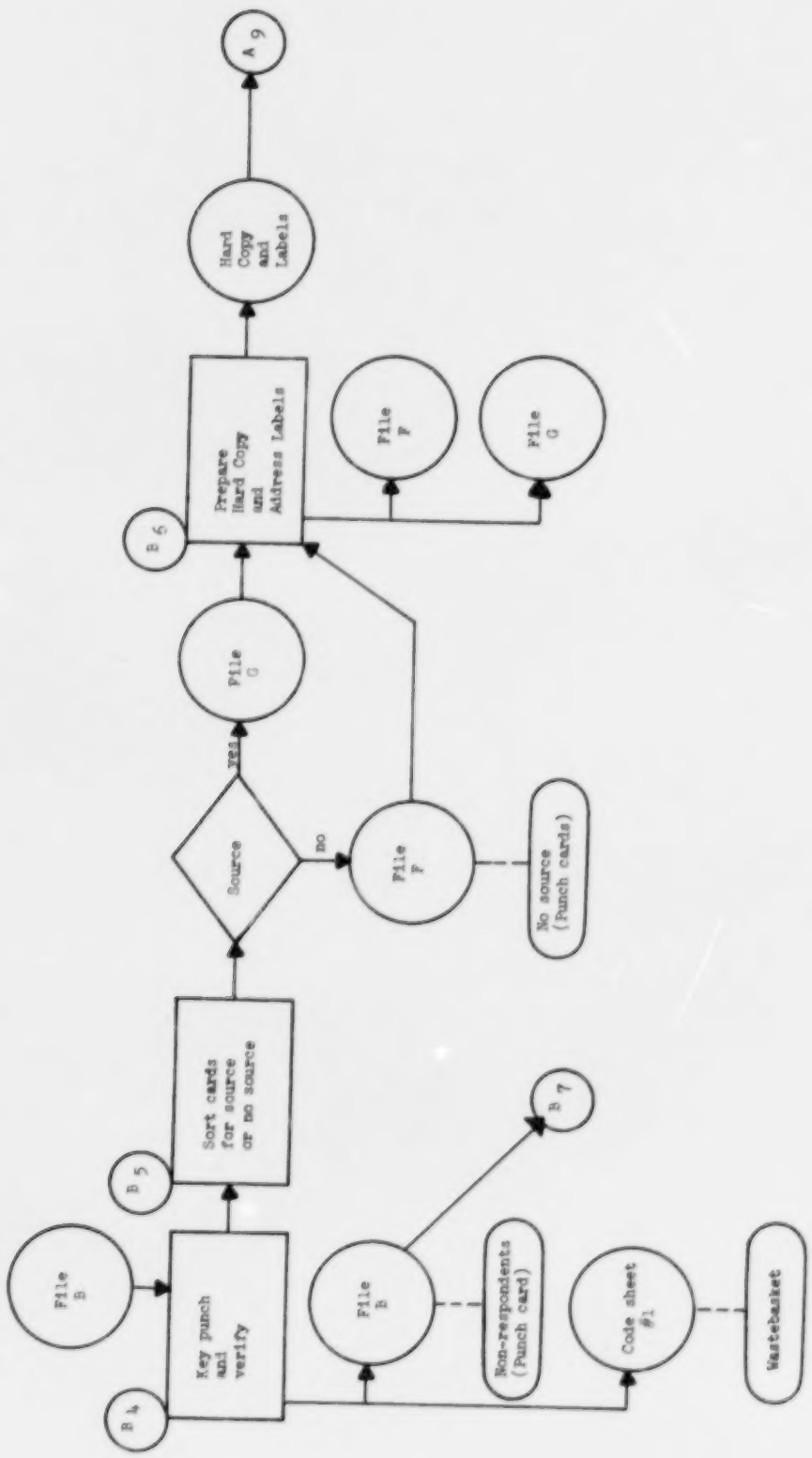
ITEM NO., ITEM	INSTRUCTIONS & DEFINITIONS
11. A. MEDICAL TYPE.	
1 THROUGH 4; RADIOGRAPHIC, FLUOROSCOPIC, & RAD.-FLUORO. COMBINATION PHOTOFLUOROGRAPHIC.	RECORD NUMBER OF EACH TYPE OF X-RAY MACHINE; AND THE TOTAL NUMBER OF X-RAY UNITS (TUBES) IN THE APPROPRIATE SPACES. X-RAY MACHINES: A PIECE OF EQUIPMENT CONTAINING ONE OR MORE TUBES AND THEIR NECESSARY APPURTENANCES (APPARATUS). X-RAY UNIT: AN X-RAY TUBE AND ITS NECESSARY APPURTENANCES.
5. X-RAY THERAPY.	RECORD NUMBER OF MACHINES. X-RAY THEPAPY: A UNIT USING IONIZING RADIATION SOURCES FOR THERAPEUTIC IRRADIATION.
B. DENTAL TYPE.	RECORD THE TOTAL NUMBER OF UNITS IN YOUR POSSESSION.
C. INDUSTRIAL & EDUCATIONAL EQUIPMENT.	
1 THROUGH 4 .	RECORD THE NUMBER OF EACH TYPE OF EQUIPMENT IN YOUR POSSESSION.
5. NO. OF FIXED UNITS.	RECORD TOTAL NUMBER OF FIXED UNITS. FIXED UNIT: A PIECE OF EQUIPMENT THAT IS NEVER USED OUT OF THE CONFINES OF THE ROOM IN WHICH IT IS FOUND.
6. NO. OF PORTABLE UNITS.	RECORD TOTAL NUMBER OF PORTABLE UNITS. PORTABLE UNITS: A PIECE OF EQUIPMENT THAT IS TRANSPORTED FOR USE IN AREAS OTHER THAN WHERE IT IS STORED.
12. A. RADIUM.	CHECK THE APPROPRIATE ANSWER. RADIUM: RADIUM 226 OR RADIUM 226 PLUS DAUGHTERS IN ANY PHYSICAL OR CHEMICAL FORM.
1. NUMBER OF RADIUM SOURCES.	RECORD TOTAL NUMBER OF RADIUM SOURCES IN YOUR POSSESSION, FOR EXAMPLE: IN THE HEALING ARTS; NEEDLES, CAPSULES (TUBES), PLAQUES OR CESSL. IN OTHER; STATIC ELIMINATORS, LIQUID LEVEL GAUGES, LUMINOUS COMPOUND, INDUSTRIAL RADIOGRAPHY, GAUGING DEVICES, NEUTRON SOURCES, AND CALIBRATION SOURCES.
2. TOTAL ACTIVITY OF RADIUM SOURCES.	RECORD NUMBER OF MILLIGRAMS.
B. NO. OF TELETHERAPY APPARATUS.	RECORD TOTAL NUMBER OF APPARATUSES. TELETHERAPY: A PIECE OF EQUIPMENT HOUSING GAMMA RAY SOURCES FOR THERAPEUTIC IRRADIATION.
C. NO. OF SOURCES USED IN INDUSTRIAL RADIOGRAPHY.	RECORD NUMBER OF SOURCES USED.
D. LICENSED ISOTOPES.	CHECK APPROPRIATE ANSWER.
E. OTHER NON-LICENSED ISOTOPES.	CHECK APPROPRIATE ANSWER.
13. ANY OTHER RADIATION SOURCES?	IF YOU HAVE ANY OTHER RADIATION SOURCES NOT COVERED IN THE PRECEDING ITEMS, PLEASE DECLARE THEM HERE.

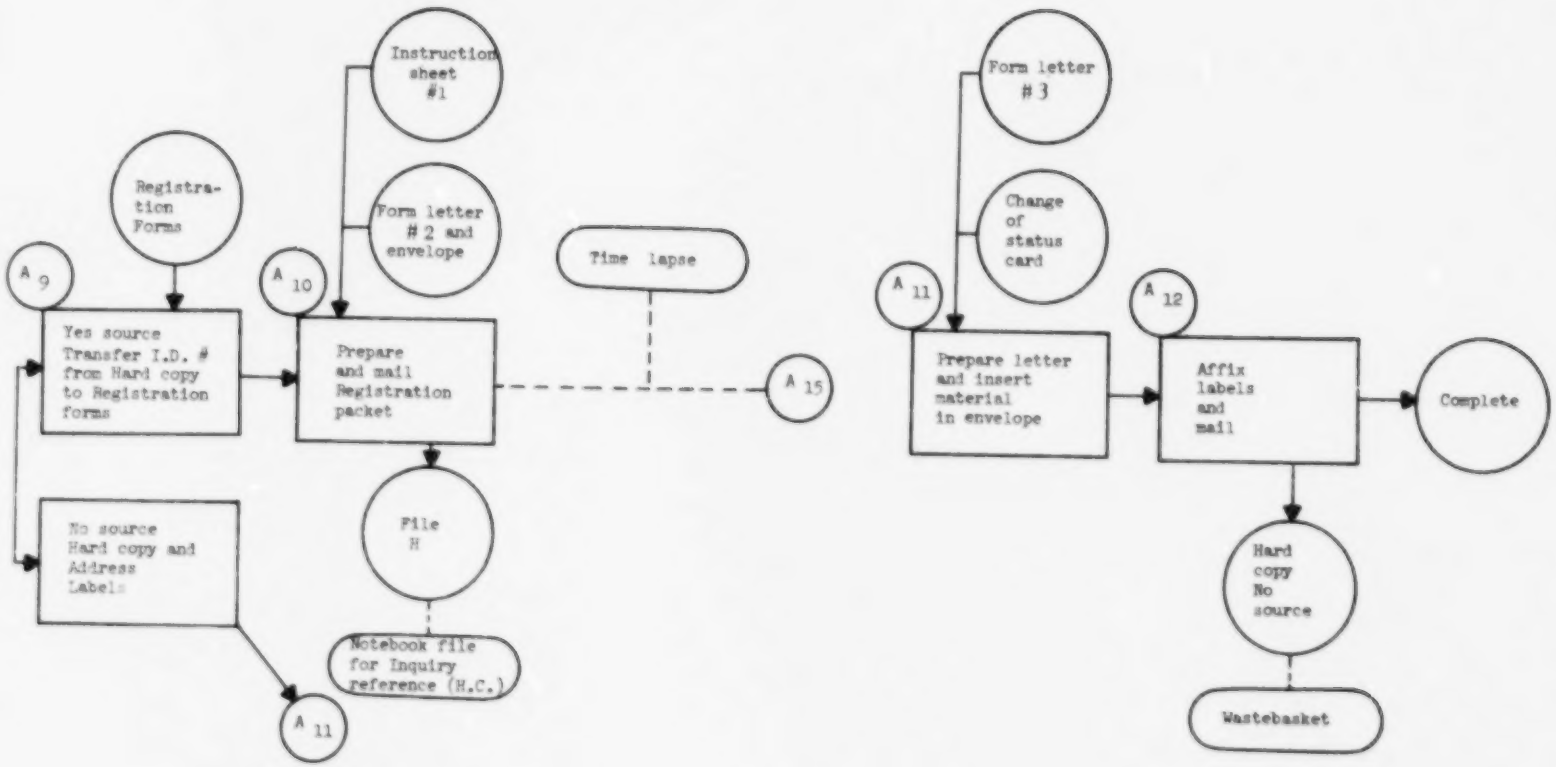
Flow Chart of an Automated Registration System



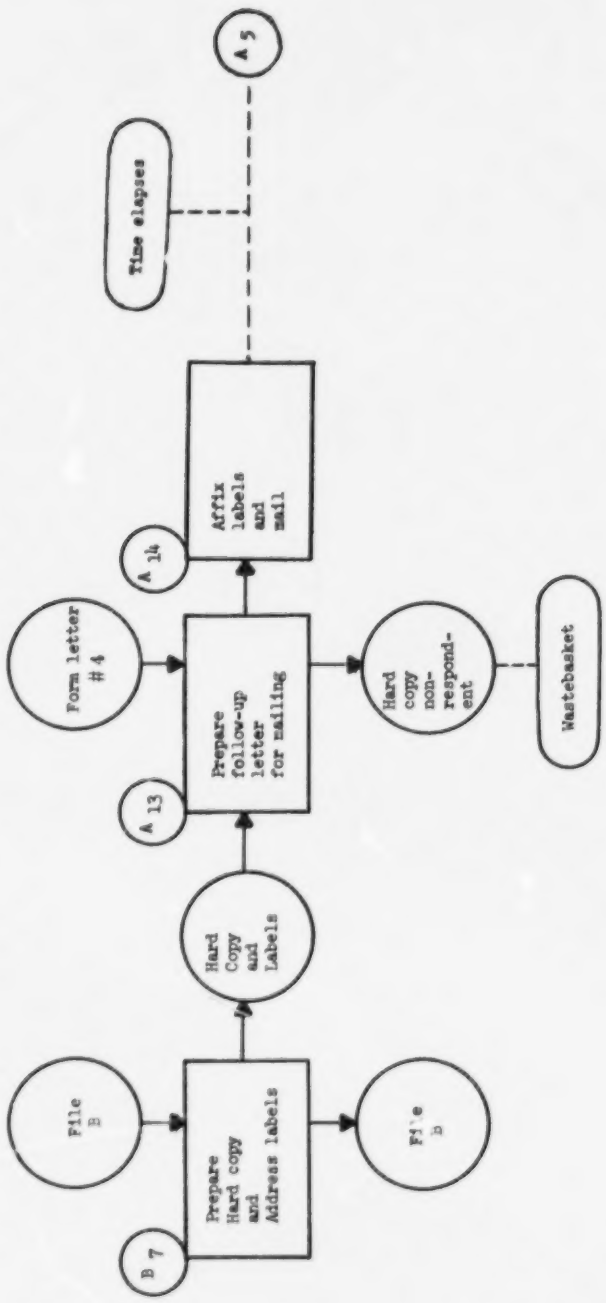

Introductory and instruction letter
Form letter #1
B 3
Send hard copy and labels to Program
H.C. mailing list, labels and code sheet
A 3
Edit check punched Inquiry Card for keypunch errors
A 4
Insert Inquiry Card in envelope and label
Mail
Time elapses
A 5
File C
Code sheet #1
File D
Completed mailing list (hard copy)

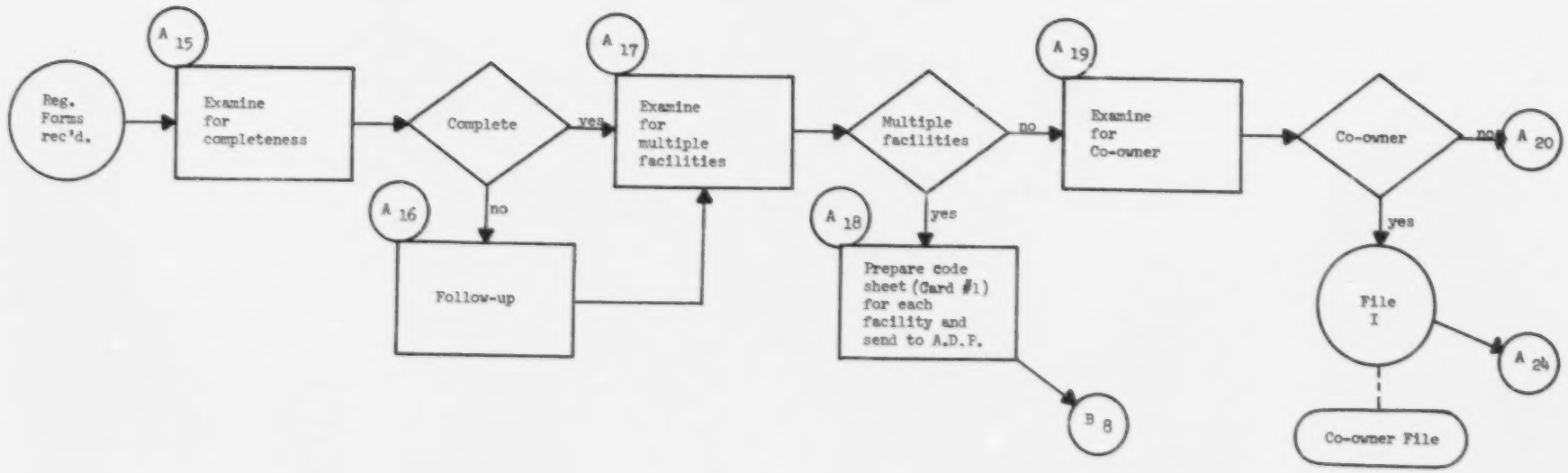

Inquiry card rec'd.
A 5
Determine whether card is complete
Complete
yes
no
A 6
Follow-up
A 7
File C
Code Column # 79 Code sheet # 1
A 8
Send to Data Processing Section
Code sheet #1
B 4
File E
Inquiry Card file

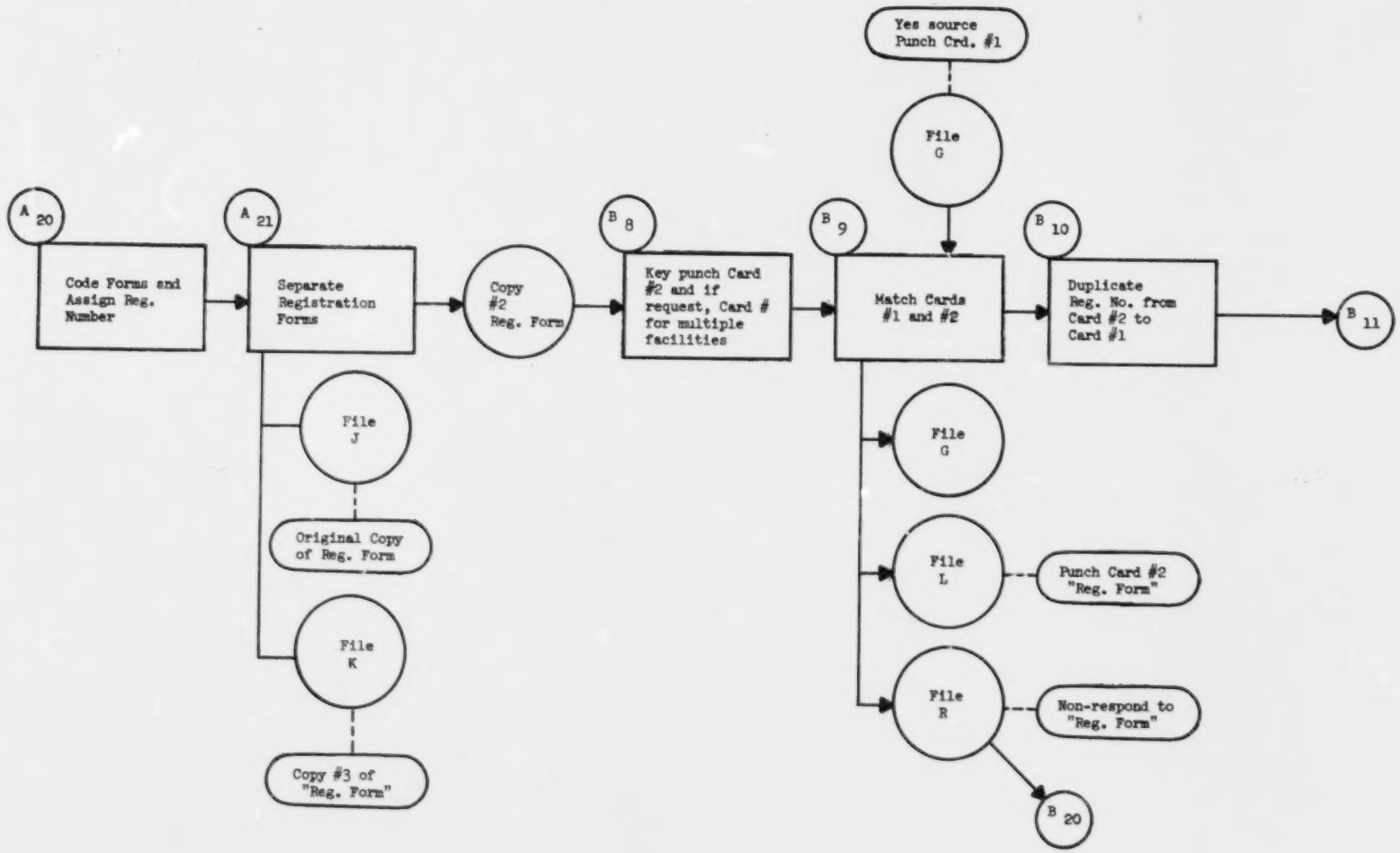

A 9
Hard Copy and Labels
Prepare Hard Copy and Address Labels
File F
File G
B 6
File G
Source
YES
NO
File F
No source (Punch cards)
B 5
Sort cards for source or no source
B 7
File B
Key punch and verify
B 4
File B
Non-respondents (Punch card)
Code sheet #1
Wastebasket

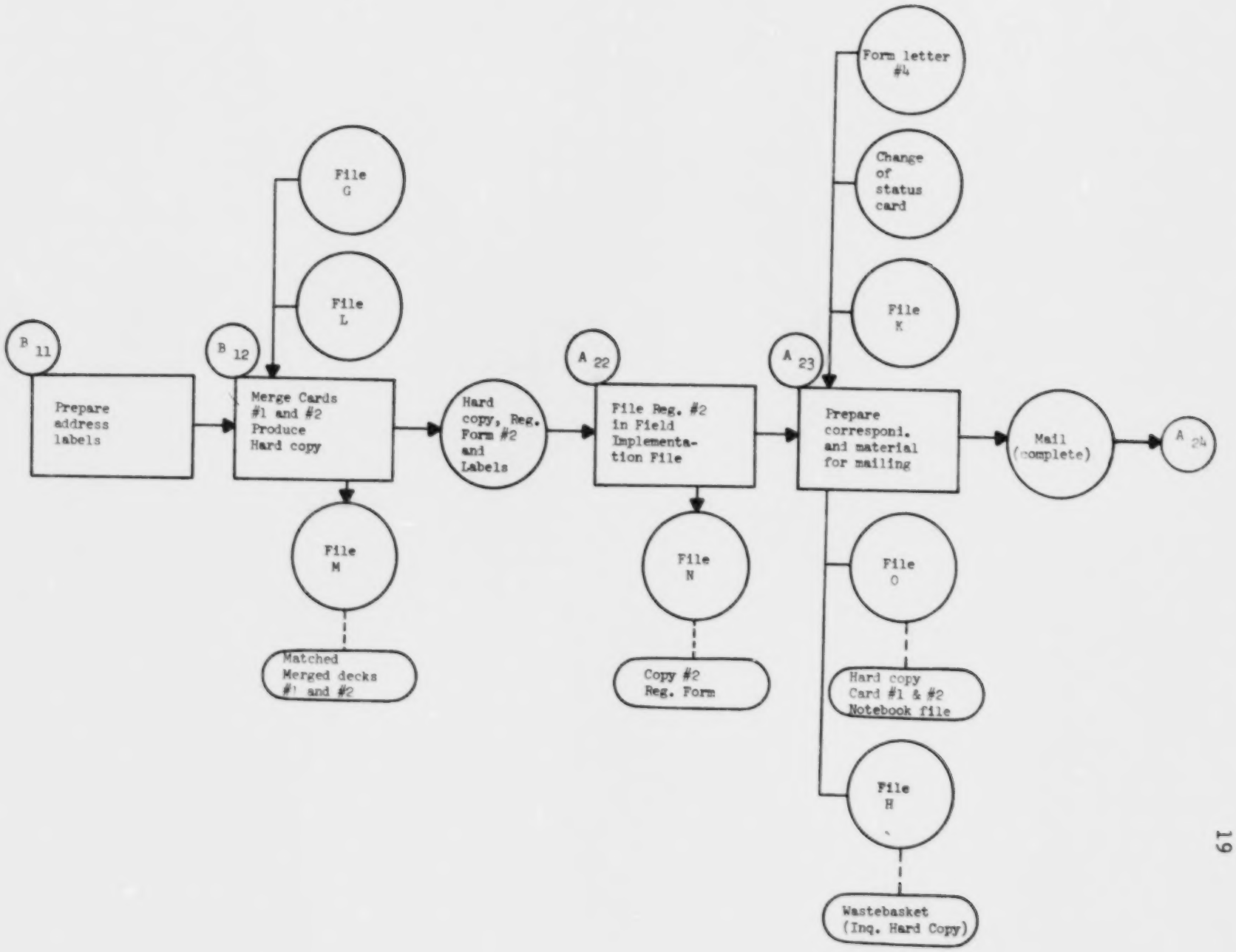

Instruction sheet #1
Registration Forms
Form letter # 2 and envelope
A 9
A 10
Time lapse
Yes source Transfer I.D. # from Hard copy to Registration forms
Prepare and mail Registration packet
A 15
File H
No source Hard copy and Address Labels
Notebook file for Inquiry reference (H.C.)
A 11
Form letter # 3
Change of status card
A 11
A 12
Prepare letter and insert material in envelope
Affix labels and mail
Complete
Hard copy No source
Wastebasket

Non-respondent to Inquiry Card Activities

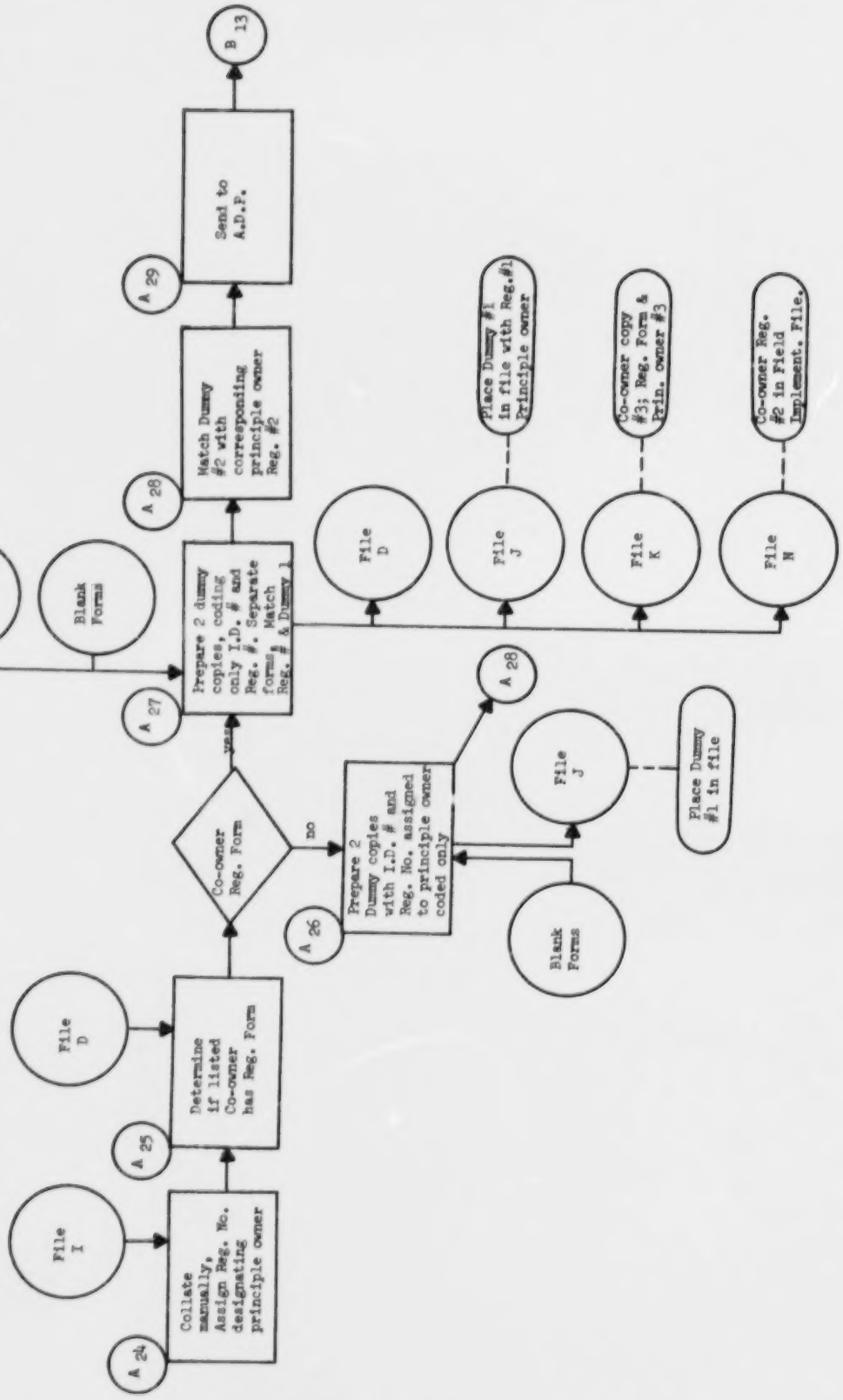


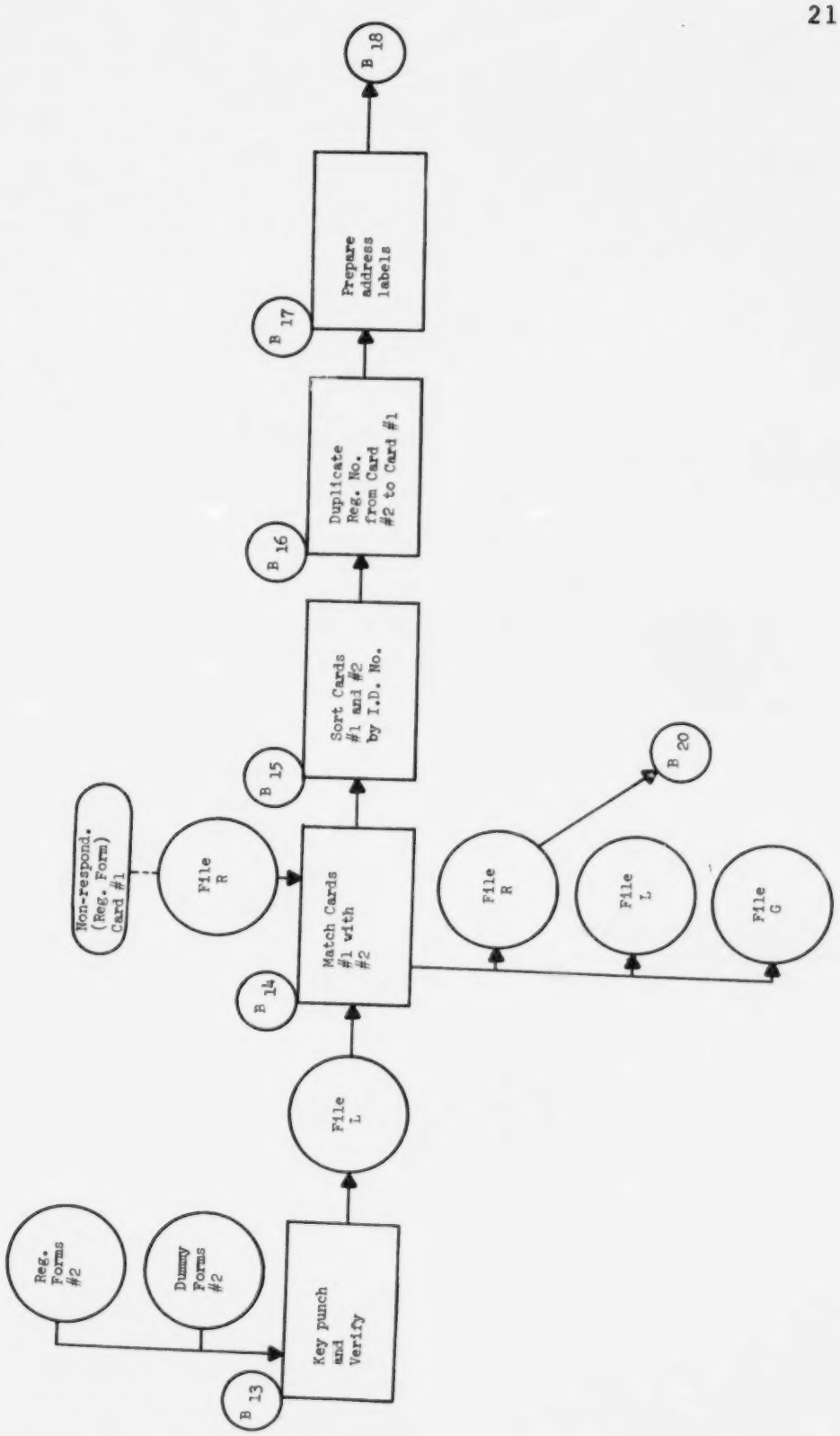

A 15
Reg. Forms rec'd.
Examine for completeness
Complete
yes
no
A 16
Follow-up
A 17
Examine for multiple facilities
Multiple facilities
yes
no
A 18
Prepare code sheet (Card #1) for each facility and send to A.D.P.
B 8
A 19
Examine for Co-owner
Co-owner
yes
no
A 20
File I
A 24
Co-owner File

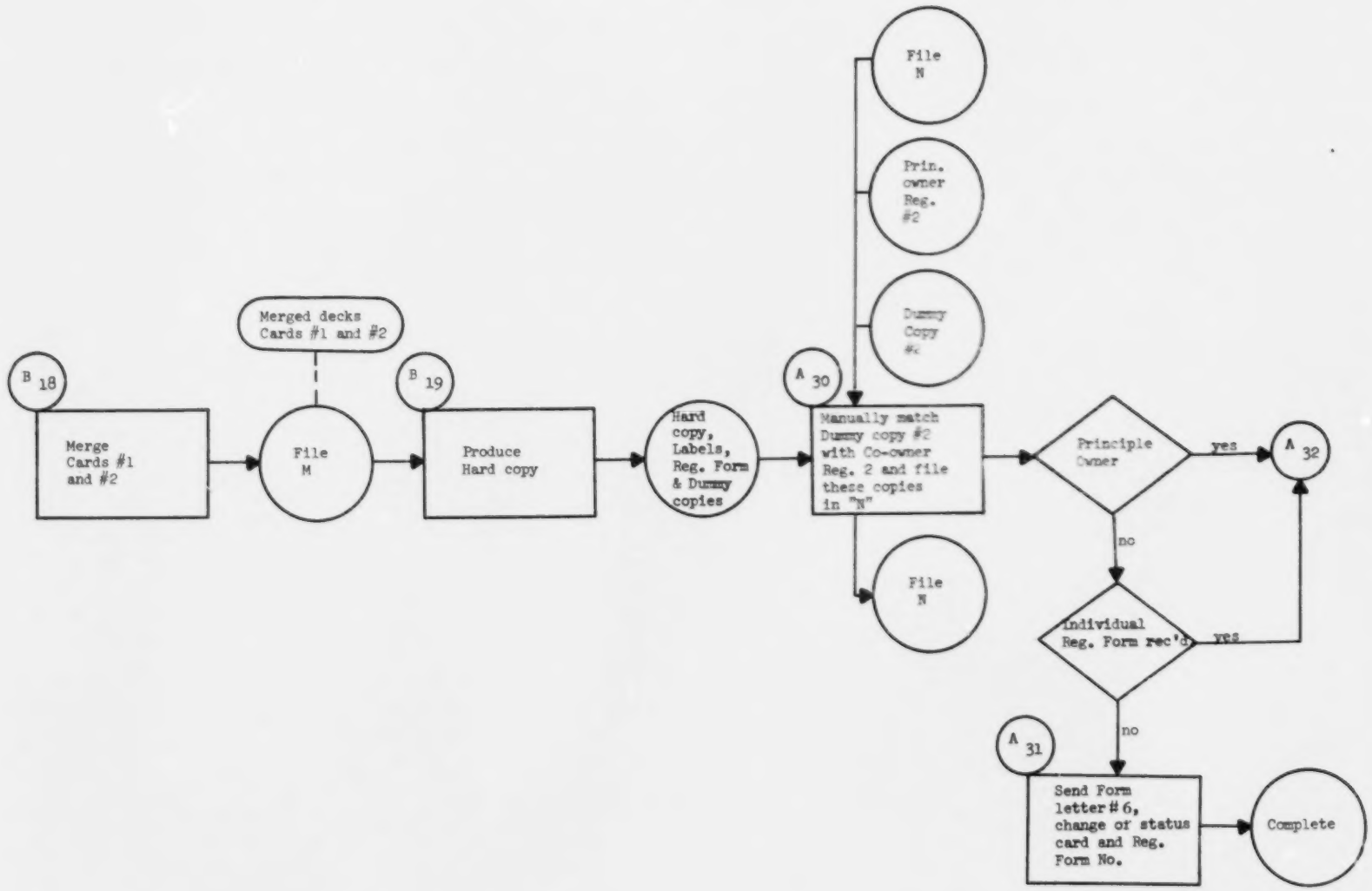

A 20
Code Forms and Assign Reg. Number
A 21
Separate Registration Forms
File J
Original Copy of Reg. Form
File K
Copy #3 of "Reg. Form"
Copy #2 Reg. Form
B 8
Key punch Card #2 and if request, Card # for multiple facilities
Yes source Punch Crd. #1
File G
B 9
Match Cards #1 and #2
B 10
Duplicate Reg. No. from Card #2 to Card #1
B 11
File G
File L
Punch Card #2 "Reg. Form"
File R
Non-respond to "Reg. Form"
B 20


B 11
Prepare address labels
B 12
Merge Cards #1 and #2 Produce Hard copy
File G
File L
Hard copy, Reg. Form #2 and Labels
A 22
File Reg. #2 in Field Implementation File
A 23
Prepare corresponi. and material for mailing
Form letter #4
Change of status card
File K
Mail (complete)
A 24
File M
Matched Merged decks #1 and #2
File N
Copy #2 Reg. Form
File O
Hard copy Card #1 & #2 Notebook file
File H
Wastebasket (Inq. Hard Copy)

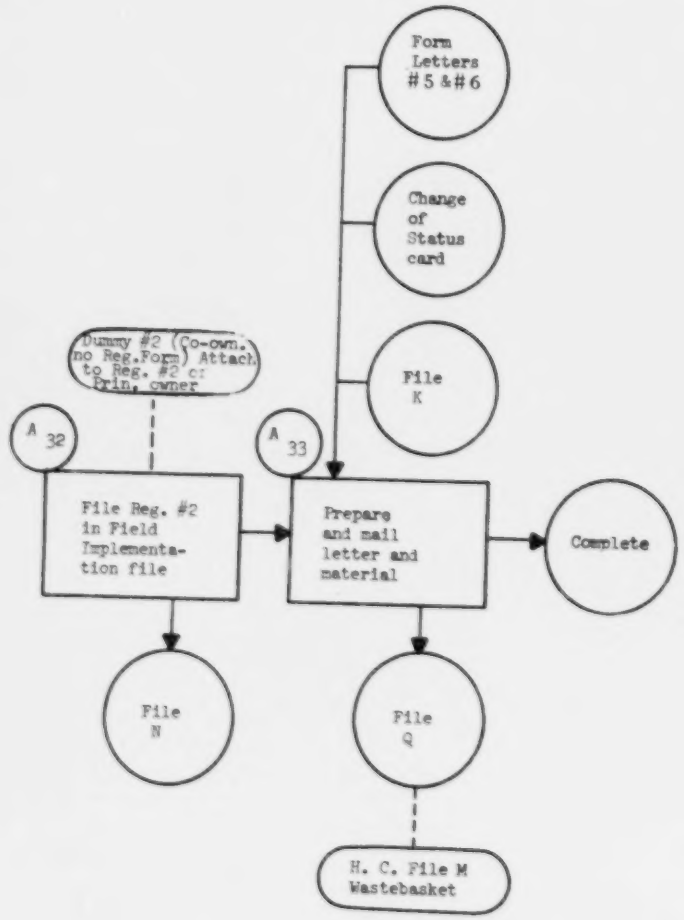
(Co-owner Activity)

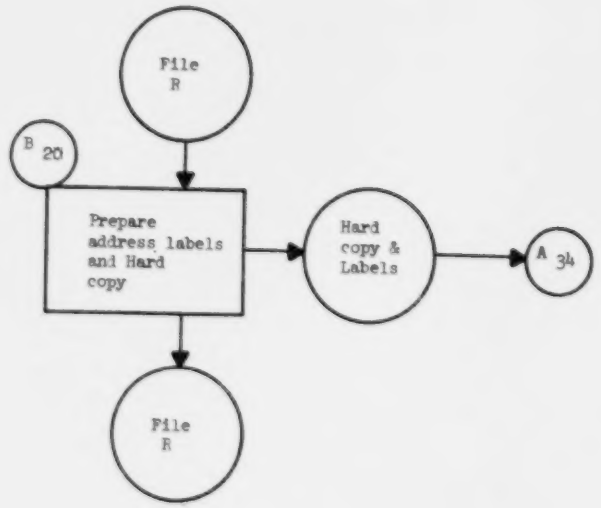

A 24
Collate manually, Assign Reg. No. designating principle owner
File I
A 25
Determine if listed Co-owner has Reg. Form
File D
Co-owner Reg. Form
yes
no
A 26
Prepare 2 Dummy copies with I.D. # and Reg. No. assigned to principle owner coded only
Blank Forms
File J
Place Dummy #1 in file
A 27
Prepare 2 dummy copies, coding only I.D. # and Reg. #. Separate forms; Match Reg. # & Dummy 1
Blank Forms
File J
File D
File J
File K
File M
A 28
Match Dummy #2 with corresponding principle owner Reg. #2
A 29
Send to A.D.P.
B 13
Place Dummy #1 in file with Reg.#1 Principle owner
Co-owner copy #3; Reg. Form & Prin. owner #3
Co-owner Reg. #2 in Field Implement. File.

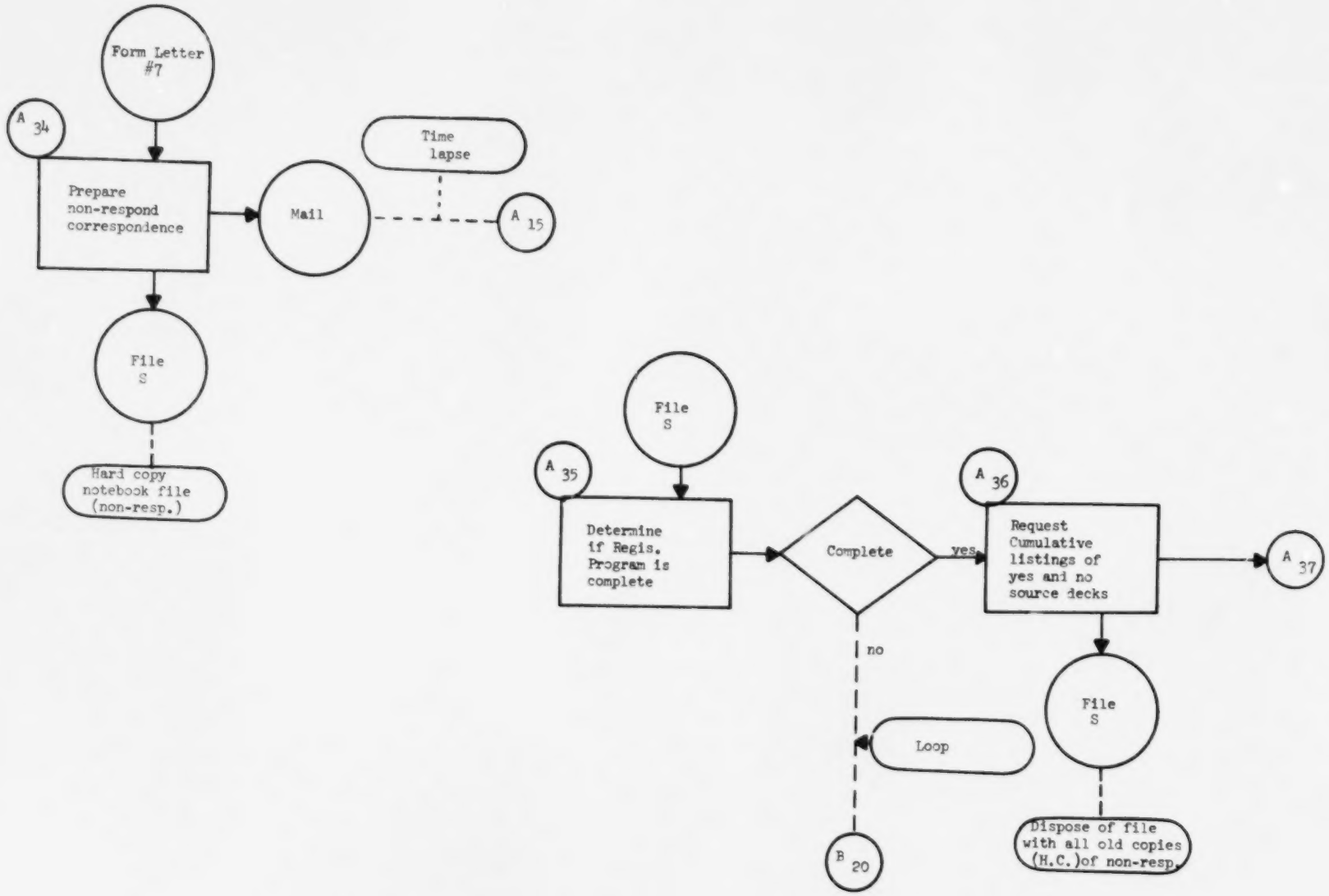

B 18
Prepare address labels
B 17
Duplicate Reg. No. from Card #2 to Card #1
B 16
Sort Cards #1 and #2 by I.D. No.
B 15
Non-respond. (Reg. Form) Card #1
File R
Match Cards #1 with #2
B 14
File R
File L
File G
B 20
File L
Key punch and Verify
B 13
Reg. Forms #2
Dummy Forms #2

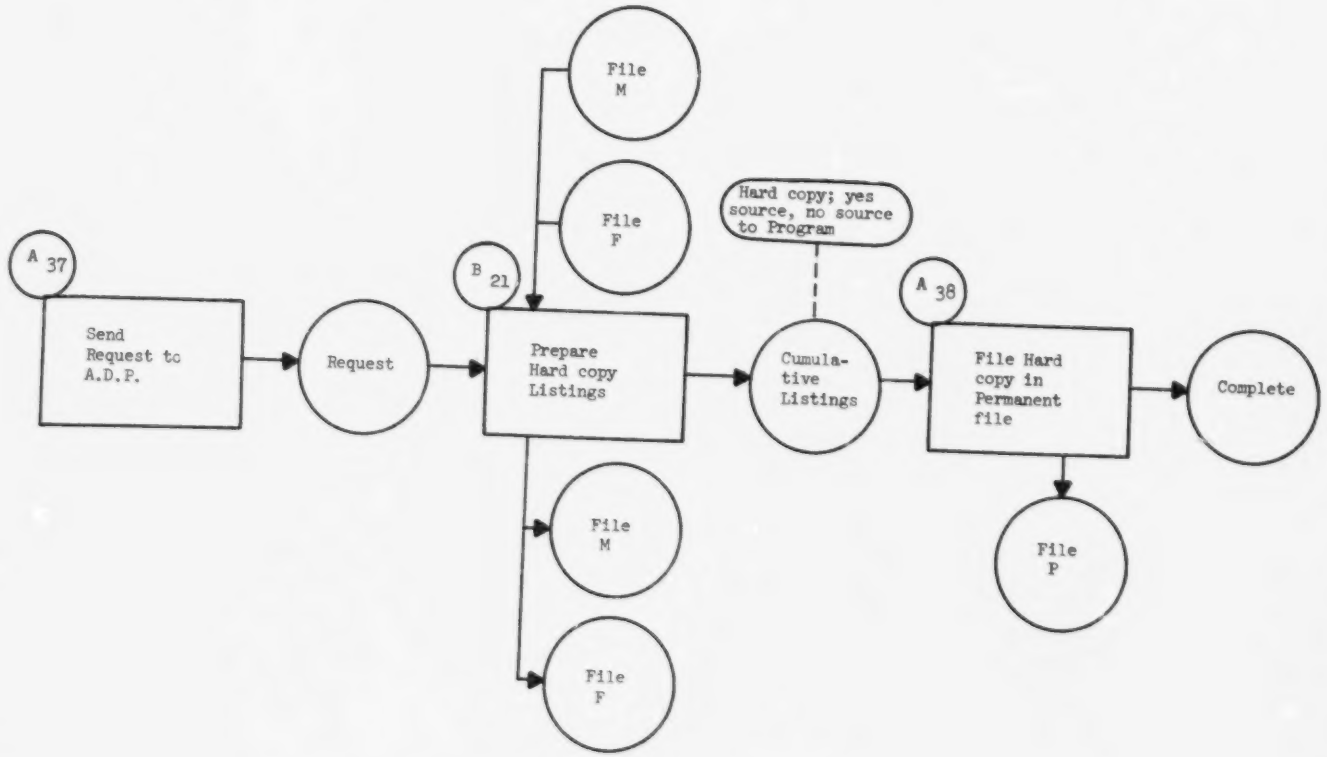

B 18
Merge Cards #1 and #2
Merged decks Cards #1 and #2
File M
B 19
Produce Hard copy
Hard copy, Labels, Reg. Form & Dummy copies
A 30
File N
Prin. owner Reg. #2
Dummy Copy #2
Manually match Dummy copy #2 with Co-owner Reg. 2 and file these copies in "N"
File N
Principle Owner
yes
A 32
no
Individual Reg. Form rec'd
yes
no
A 31
Send Form letter # 6, change or status card and Reg. Form No.
Complete

(Non-respondent Activity)


Form Letters #5 &#6
Change of Status card
File K
Dummy #2 (Co-own. no Reg.Form) Attach. to Reg. #2 of Prin. owner
A 32
A 33
File Reg. #2 in Field Implementation file
Prepare and mail letter and material
Complete
File N
File Q
H. C. File M Wastebasket




Form Letter #7
A 34
Prepare non-respond corresponience
Mail
Time lapse
A 15
File S
Hard copy notebook file (non-resp.)
File S
A 35
Determine if Regis. Program is complete
Complete
yes
no
A 36
Request Cumulative listings of yes and no source decks
A 37
File S
Loop
B 20
Dispose of file with all old copies (H.C.)of non-resp.


A 37
Send Request to A.D.P.
Request
B 21
File M
File F
Prepare Hard copy Listings
File M
File F
Hard copy; yes source, no source to Program
Cumula-tive Listings
A 38
File Hard copy in Permanent file
File P
Complete

Data Processing Work Request

JOB NO. (A 2) (A 18)

NAME _____ EXT.NO. _____ DATE SUBMITTED __/__/____ DATE NEEDED __/__/____

PART I. KEYPUNCH AND VERIFIER SECTION

1. NO. OF CARDS TO A FORM: 1
2. NO. OF FORMS: (Record No. of Code Sheets)
3. SPECIAL INSTRUCTIONS
" Registration of Radiation Sources"
" Name of Requesting Section"

Keypunch as recorded. Leave all uncoded columns blank.

NOTE: 1-Alphabetical listing; sort 5 columns, 14-18

1-Listing by I.D. number; columns 7-12

PART II. TABULATING SECTION

1. LISTINGS
   A. DESCRIPTION: 2 Cumulative listings; See "NOTE" in Part I.
   B. NO. OF CARBONS: 1
2. DUPLICATE DECK? ____ YES x NO
3. SORTING? x YES ____ NO
4. SPECIAL INSTRUCTIONS:
Furnish Address Labels for Mailing.

Data Processing Work Request

JOB NO. A 8

NAME _____ EXT.NO. _____ DATE SUBMITTED __/__/____ DATE NEEDED __/__/____

PART I. KEYPUNCH AND VERIFIER SECTION

1. NO. OF CARDS TO A FORM: 1
2. NO. OF FORMS: (Record No. of Attached Sheets)
3. SPECIAL INSTRUCTIONS "Registration of Radiation Sources"

"Name of Requesting Section"

Pull appropriate card #1 from storage file and keypunch column "79" as indicated on the attached list.

PART II. TABULATING SECTION

1. LISTINGS
   A. DESCRIPTION: 3 Listings
   1-Registrant (Code 1 in col. 79)
   1-No Source (Code 2 in col. 79)
   1-Non-respondent (Blank in 79)
   B. NO. OF CARBONS: 1
2. DUPLICATE DECK? ____ YES x NO
3. SORTING? x YES ____ NO
4. SPECIAL INSTRUCTIONS: List each group by I.D. No.; col. 7-12.

   Prepare address labels for all.

Data Processing Work Request

JOB NO. _____

B 20

NAME _____ EXT.NO. _____ DATE SUBMITTED __/__/____ DATE NEEDED __/__/____

PART I. KEYPUNCH AND VERIFIER SECTION

1. NO. OF CARDS TO A FORM: _____
2. NO. OF FORMS: _____
3. SPECIAL INSTRUCTIONS _____

NOTE: Separate cards #1 and #2, (sort on col. 13)

Using only card #1; sort on col. 79, pull cards coded "1" and sort col. 1 for blanks, these are the non-respondents to the Reg. Contact. Take this deck, sort col. 7-12 & List.

PART II. TABULATING SECTION

1. LISTINGS
   A. DESCRIPTION: Prepare complete listing of non-respondents to the Registration Contact. SEE PART I; NOTE
   B. NO. OF CARBONS: 1
2. DUPLICATE DECK? ____ YES x NO
3. SORTING? x YES ____ NO
4. SPECIAL INSTRUCTIONS: Produce mailing address labels.

Data Processing Work Request

JOB NO. _____

A 21 A 28

NAME _____ EXT.NO. _____ DATE SUBMITTED __/__/____ DATE NEEDED __/__/____

PART I. KEYPUNCH AND VERIFIER SECTION

1. NO. OF CARDS TO A FORM: 1
2. NO. OF FORMS: (Record No. Registration
3. SPECIAL INSTRUCTIONS forms)
"Registration of Radiation Sources"

"Name of Requesting Section"

Keypunch Registration forms; Card #2, as reported, leaving all unused columns blank.

PART II. TABULATING SECTION

1. LISTINGS
   A. DESCRIPTION: Prepare Partial Listing of matched-merged cards #1 and #2 by Registration No.; Col. 1-6
   B. NO. OF CARBONS: 1
2. DUPLICATE DECK? YES ___ NO x
3. SORTING? YES x NO ___
4. SPECIAL INSTRUCTIONS:
Produce address labels.

Data Processing Work Request

JOB NO. _____

(A 36)

NAME _____ EXT.NO. _____ DATE SUBMITTED __/__/____ DATE NEEDED __/__/____

PART I. KEYPUNCH AND VERIFIER SECTION

1. NO. OF CARDS TO A FORM: _____
2. NO. OF FORMS: _____
3. SPECIAL INSTRUCTIONS _____

NOTE: "No source" facilities are coded 2 in card #1; col. 79.

PART II. TABULATING SECTION

1. LISTINGS
   A. DESCRIPTION: Prepare 3 cumulative listings, as designated in item #4 below.

   B. NO. OF CARBONS: 1

2. DUPLICATE DECK? _____ x _____
   YES NO

3. SORTING? x _____
   YES NO

4. SPECIAL INSTRUCTIONS: 2 listings for Registrants; 1 by Reg. No. (col. 1-6) and 1 by I.D. No. (col. 7-12), and 1 listing for "No Source facilities" by I.D. No.

Narrative of Registration Activities

Establish Mailing List:

A-1. Complete a code sheet with the exception of Column 79 for each potential user on the lists obtained from the professional sources, and assign each an Identification Number.

A-2. Send all code sheets to the Data Processing Section for keypunching and listing with complete instructions. (See Request Form A2)

B-1. Keypunch data from code sheet to 80 column punch cards. (Referred to as Card #1)

B-2. Prepare listing (referred to as hard copy in the preceding steps), and produce address labels.

B-3. Send hard copy and address labels to the Program, and return code sheets.

First Contact:

Preparation of Inquiry Card

A-3. Edit check punched Inquiry Card for keypunch errors, file code sheet and completed mailing list.

A-4. Insert form letter #1, "Introductory and Instruction Letter," (Appendix A) and Inquiry Card in an envelope, attach address label, and mail.

Inquiry Cards are received

A-5. Determine whether the card has been completed.

A-6. If the card has not been checked in any area or if there is any question regarding the information, then follow-up either by telephone or by written correspondence for clarification of information.

A-7. & A-8. If the inquiry card is complete, pull corresponding code sheet from file, code Column 79, file inquiry card and send code sheet to the Data Processing Section. (Request Form A8)

B-4. Matching Identification Number, Column 7-12, pull card #1 from storage file, keypunch Column 79 and verify.

B-5. Using card sorter, sort cards for yes source and no source, Column 79.

B-6. Using only the yes source deck, prepare hard copy and address labels, then with the no source deck, repeat the above activity and send the materials to the Program.

B-7. The punched cards remaining in the storage file are the non-respondents. Prepare hard copy and address labels from this deck and send them to the Program.

Second Contact:

Preparation of Registration Packet.

A-9. Using the yes source hard copy, transfer the identification number to the registration forms in the packet. File yes source hard copy in a notebook file for future reference.

A-10. Prepare and mail registration packet; insert form letter #2 (Appendix B), Instruction Sheet, Registration Forms and attach address label.

A-11. Using the no source hard copy, prepare form letter #3; "Letter of Appreciation", and insert into envelope with the Change of Status Card. No source hard copy may be destroyed at this time.

A-12. Affix address labels and mail.

A-13. Using the non-respondent hard copy, prepare form letter #4, "Follow-up Letter". Destroy hard copy.

A-14. Affix address labels and mail.

A-15. Examine each form for completeness.

A-16. For those that are not complete, follow-up either by telephone or written correspondence.

A-17. Examine for multiple facilities for each owner.

A-18. Prepare code sheet (card #1), for each facility and send to the Data Processing Section. (See Request Form A $_{18}$)

A-19. Examine the completed Registration forms for co-owners. All forms designating a co-owner should be set aside in a folder for special handling.

A-20. No co-owner; forms are to be coded and assigned a registration number.

A-21. Separate the tree copies of each form; file the original copy in a permanent file, file copy #3 in a folder file temporarily, and send copy #2 to the Data Processing Section. (See Request Form A $_{21}$).

B-8. Keypunch data from the registration form to an 80 column punch card. Keypunch all code sheets (card #1) for owners of multiple facilities, on request.

B-9. Remove card #1 from storage file and match corresponding cards #1 and #2 by Identification number.

B-10. Duplicate Registration Number (columns 1-6) from card #2 to card #1.

B-11. Prepare address labels.

B-12. Merge cards #1 and #2, produce hard copy and send labels, hard copy and Registration copy #2 to the Program.

A-22. File registration copy #2 in field implementation file for future use by the survey team in the field.

A-23. Using hard copy, prepare form letter #5; "Letter of Appreciation", insert Change of Status Card, Registration copy #3 and form letter in envelope and mail. Place hard copy (card #1 and #2) in notebook reference file, and destroy previous hard copy.

Co-owners:

A-24. From the co-owner folder, collate manually duplicate forms sent in by co-owners. Designate principal owner and assign registration number.

A-25. Determine if listed co-owner has sent in a registration form.

A-26. For the co-owner that has not returned a duplicate form, prepare 2 dummy copies (using blank registration forms) by inserting the co-owner's identification number in the appropriate columns and the registration number assigned to the principal owner. Do not code any other columns. Place one dummy copy with the original copy of the principal owner, and file. For dummy copy #2, see step A-28.

A-27. For the co-owners that have submitted duplicate registration forms, prepare 2 dummy copies, coding only the co-owner's identification number and the principal owner's registration number. Separate the registration copies, match registration original to dummy original and place in file with designated principal owner's original copy. File co-owner's #3 copy of the registration form with the principal owner's #3 copy in temporary folder.

A-28. Match dummy copy #2 with corresponding principal owner registration copy #2.

A-29. Send to Data Processing Section. (See Request Form A_{28}).

B-13. Keypunch registration copy #2 and dummy copy #2 and verify.

B-14. Match card #1 with card #2.

B-15. Using card sorter, sort cards #1 and #2 by identification number.

B-16. Duplicate Registration Number from card #2 to card #1. If at this time card #1 should already have a different registration number in the appropriate columns, this card #2 was missed in the "Multiple Facilities" check, and the Program will have to be notified so that a code sheet for card #1 can be filled out for keypunching.

B-17. Prepare address labels.

B-18. Merge cards #1 and #2 by registration number.

B-19. Produce hard copy and send with registration form #2 and dummy copy #2 to Program.

B-20. From non-respondent (registration form) deck, prepare address labels and hard copy. Send to Program.

A-30. Manually match dummy copy #2 with co-owner registration #2 and file.

A-31. For co-owner who did not submit a registration form, send form letter #6, Change of Status Card, and Registration Number assigned to the facility.

A-32. Attach dummy copy #2 of co-owner who did not submit a registration form to the registration form #2 of principle owner and file in Field Implementation file.

A-33. Prepare form letter #5 and #6--one for co-owner and one for principle owner (as designated by program personnel)--insert into envelope with Change of Status Card and Registration Form #3. Destroy hard copy.

A-34. Prepare letter #7; follow-up for return of registration forms, and mail. File hard copy in notebook file.

A-35. Determine if registration project is complete; <u>not complete</u>, LOOP to step B-20.

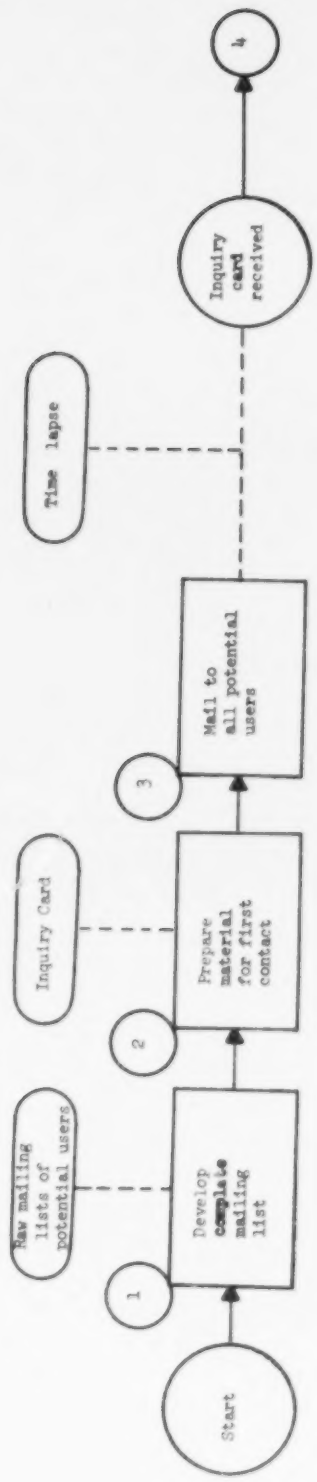
A-36. Registration is complete; request cumulative listings of "yes" source and "no" source decks. (See Request Form A_{36}).

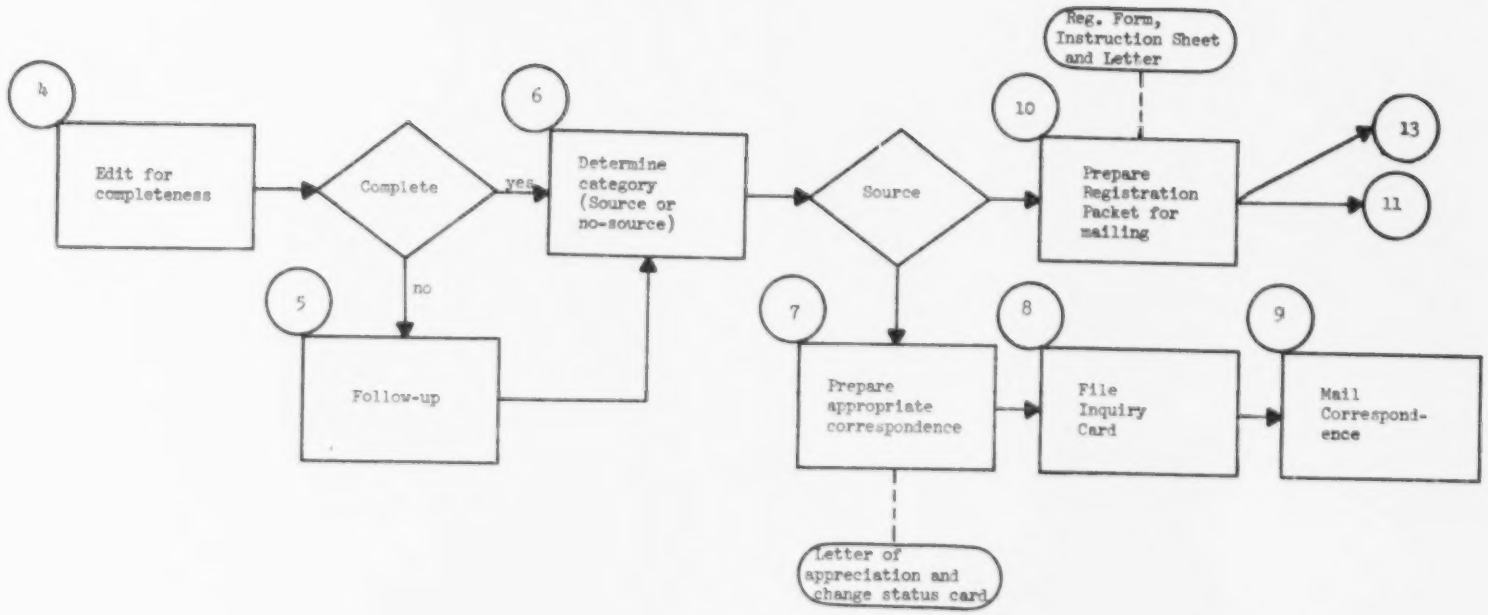
A-37. Send request to Data Processing Section.

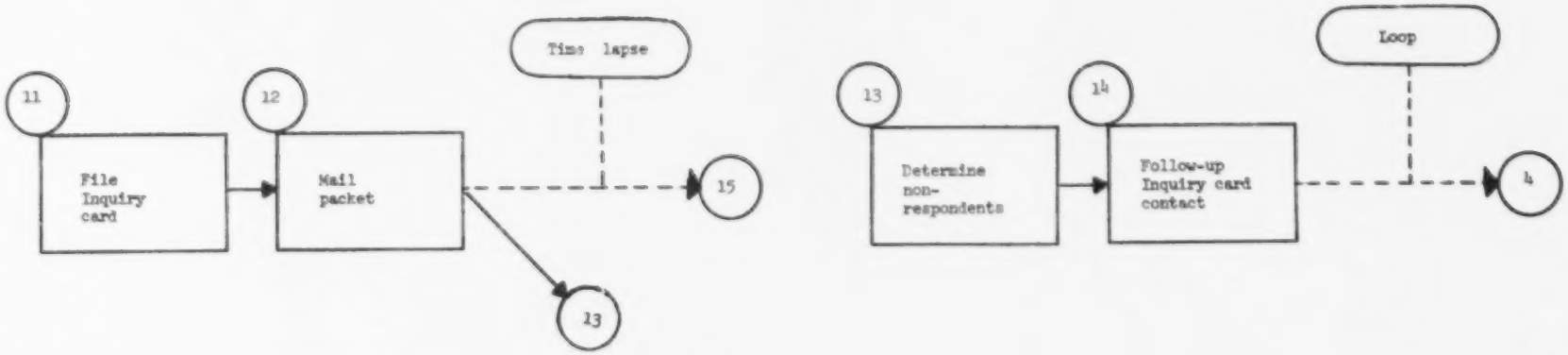
B-21. Prepare cumulative listings and send to Program.

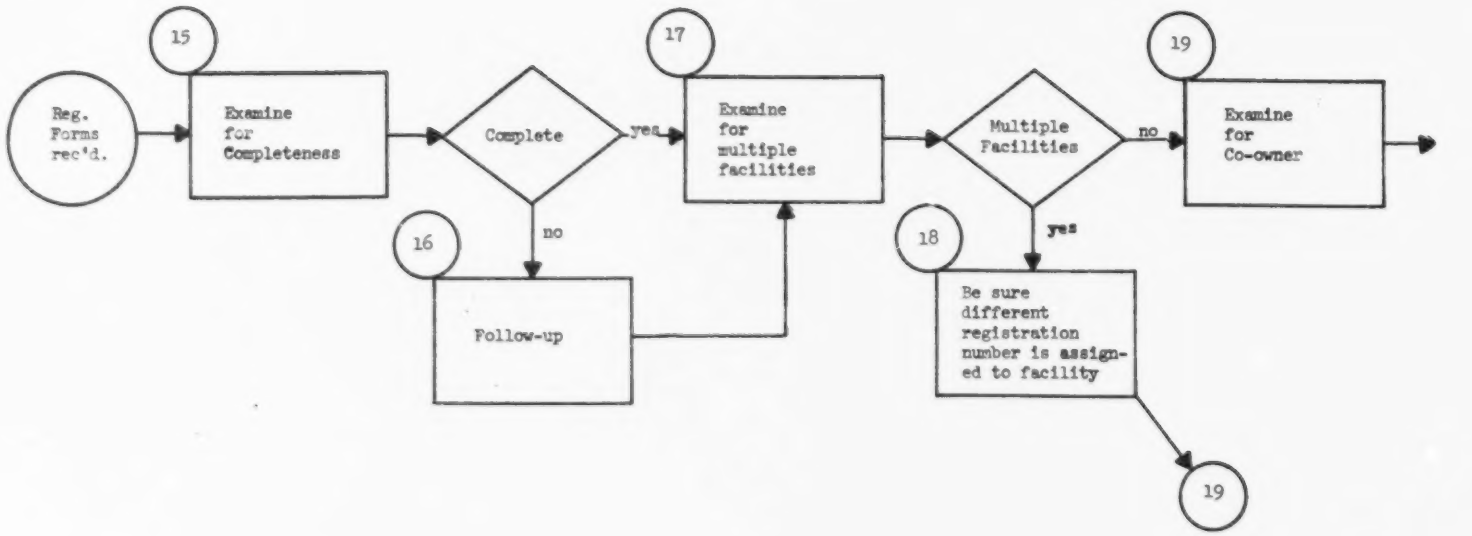
A-38. File hard copy in permanent file.

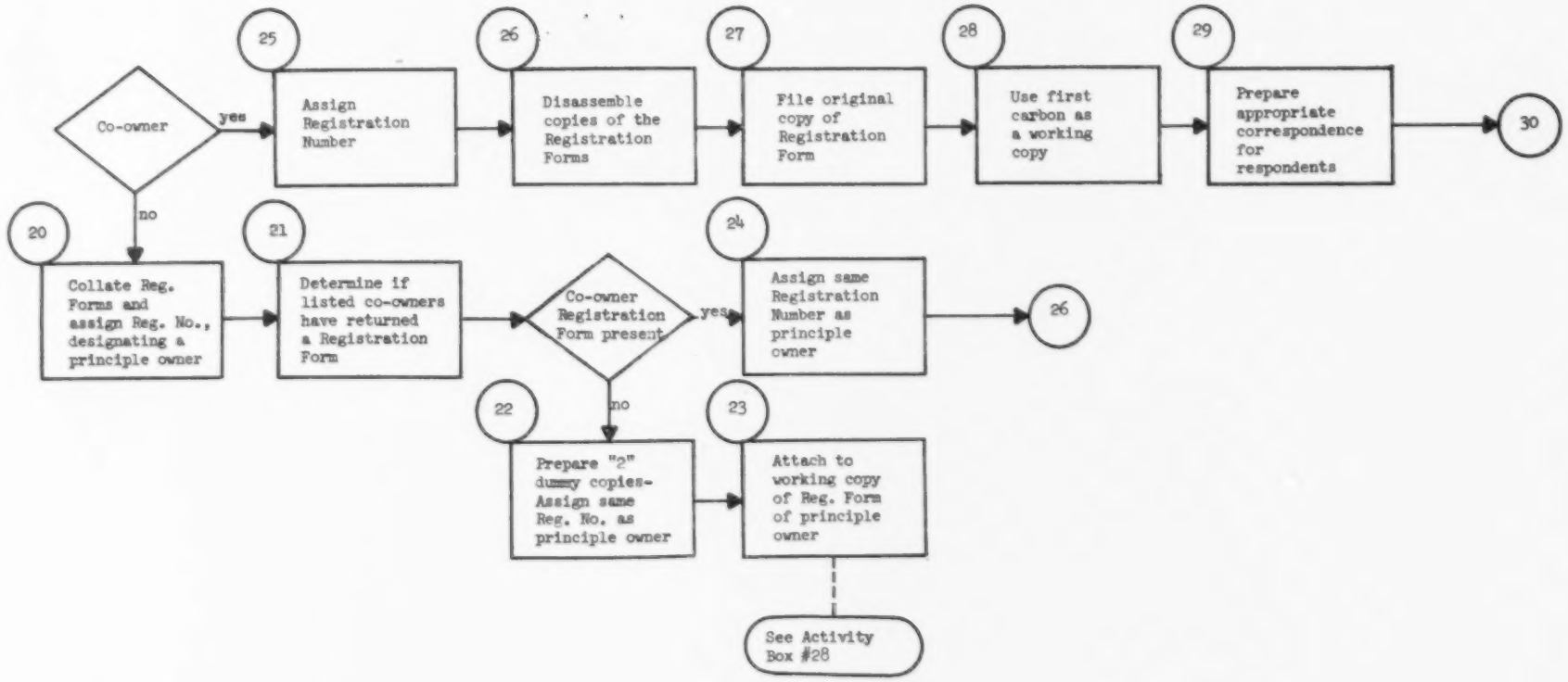
Flow Chart of a Manually Processed System

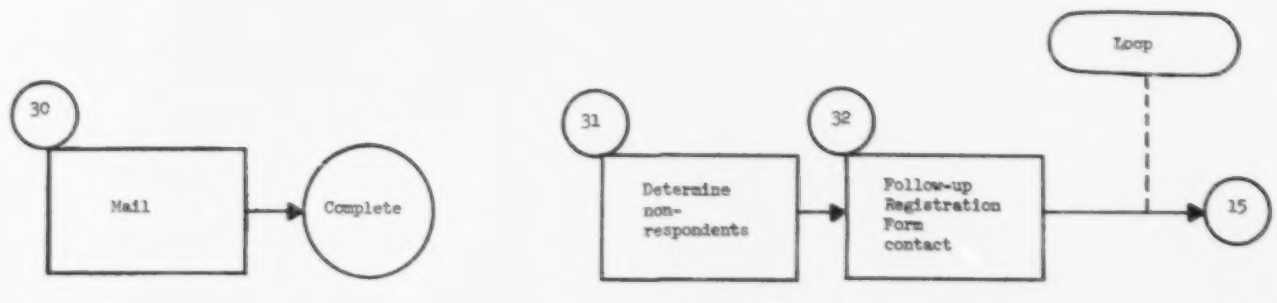



4
Edit for completeness
Complete
yes
no
6
Determine category (Source or no-source)
5
Follow-up
Source
Reg. Form, Instruction Sheet and Letter
10
Prepare Registration Packet for mailing
13
11
7
Prepare appropriate correspondence
Letter of appreciation and change status card
8
File Inquiry Card
9
Mail Correspondence


11
File Inquiry card
12
Mail packet
Time lapse
15
13
13
Determine non-respondents
14
Follow-up Inquiry card contact
Loop
4


15
Reg.
Forms
rec'd.
Examine
for
Completeness
Complete
yes
17
Examine
for
multiple
facilities
Multiple
Facilities
no
19
Examine
for
Co-owner
no
16
Follow-up
yes
18
Be sure
different
registration
number is assign-
ed to facility
19


25
26
27
28
29
Co-owner
yes
Assign Registration Number
Disassemble copies of the Registration Forms
File original copy of Registration Form
Use first carbon as a working copy
Prepare appropriate correspondence for respondents
30
no
20
21
24
Collate Reg. Forms and assign Reg. No., designating a principle owner
Determine if listed co-owners have returned a Registration Form
Co-owner Registration Form present
yes
Assign same Registration Number as principle owner
26
no
22
23
Prepare "2" dummy copies- Assign same Reg. No. as principle owner
Attach to working copy of Reg. Form of principle owner
See Activity Box #28


30
Mail
Complete
31
Determine
non-
respondents
32
Follow-up
Registration
Form
contact
Loop
15

Renewal of Registration - Most state regulations pertaining to the registration of radiation sources require renewal of registration at designated intervals. In order to perform this activity efficiently and with very little manual manipulation, a system utilizing a data punch card has been developed. All registrants will be required to complete the Radiation Source Registration Renewal Card (Figure 5) that is sent to them with an explanatory letter (Page 71). This card will be used in an automatic data processing system to update the registration file and to delete those registrants who have disposed of their sources.

The procedural flow chart (Page 43) and corresponding narrative (Page 50) are included for explanation of the activities involved in this portion of the registration system. Some of the activities correspond to those in the original flow chart (Page 11), and in those instances a loop to the corresponding activity in the original chart is initiated.

RADIATION SOURCE REGISTRATION

RENEWAL

DATE _____

PLEASE CHECK APPROPRIATE BOX.

1. ☐ Information on radiation sources registered with the Department of Health has been changed. Please send a new Registration Form.
2. ☐ Radiation Sources registered with the Department of Health are unchanged. Please renew my registration.
3. ☐ I no longer have any radiation sources in my possession.

If you have checked box No. 2, this form is valid renewal of your registration. If you have checked box No. 3, we will remove you from the register.

SIGNATURE _____ DATE _____

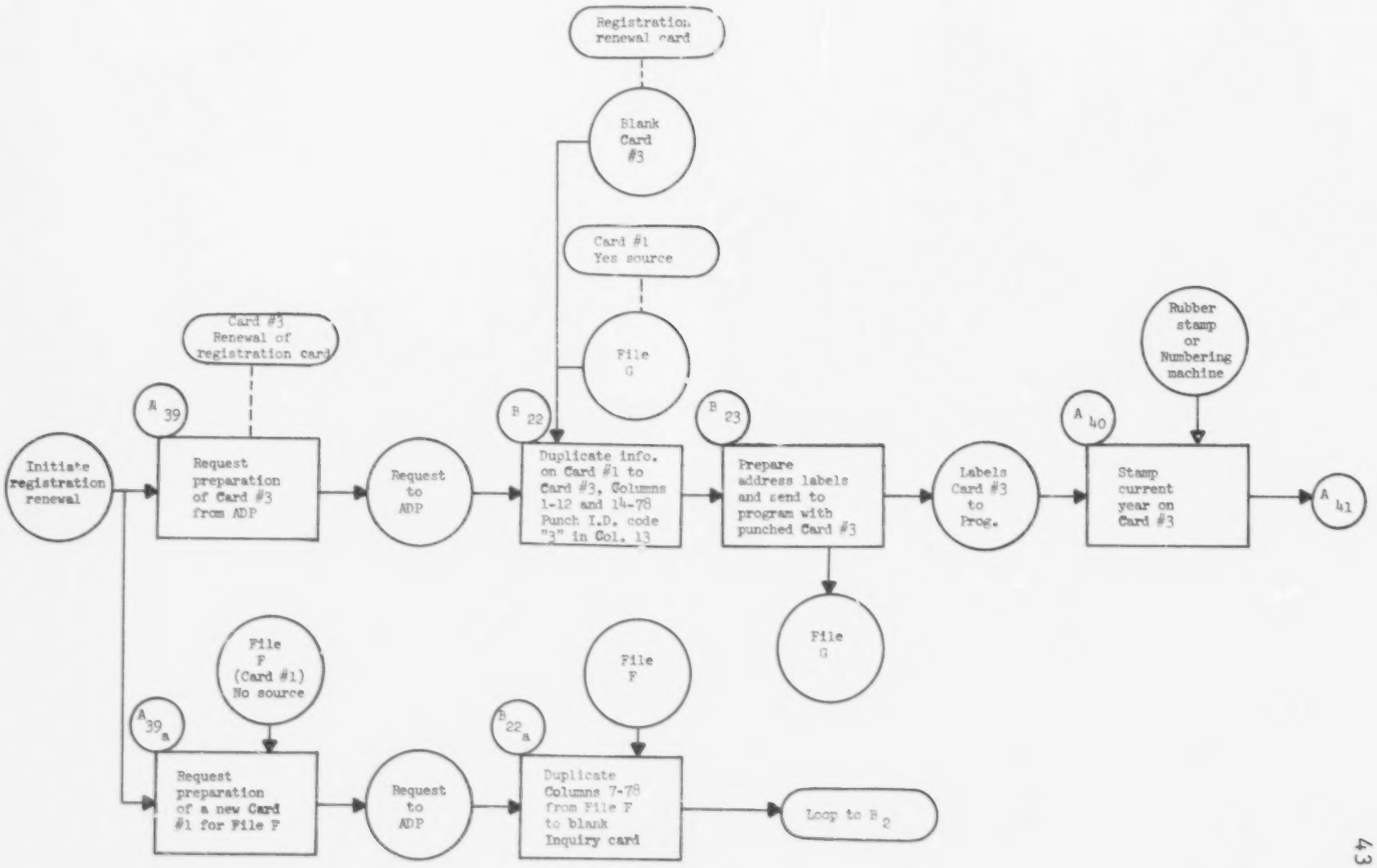
PHS-4809-5
1-67

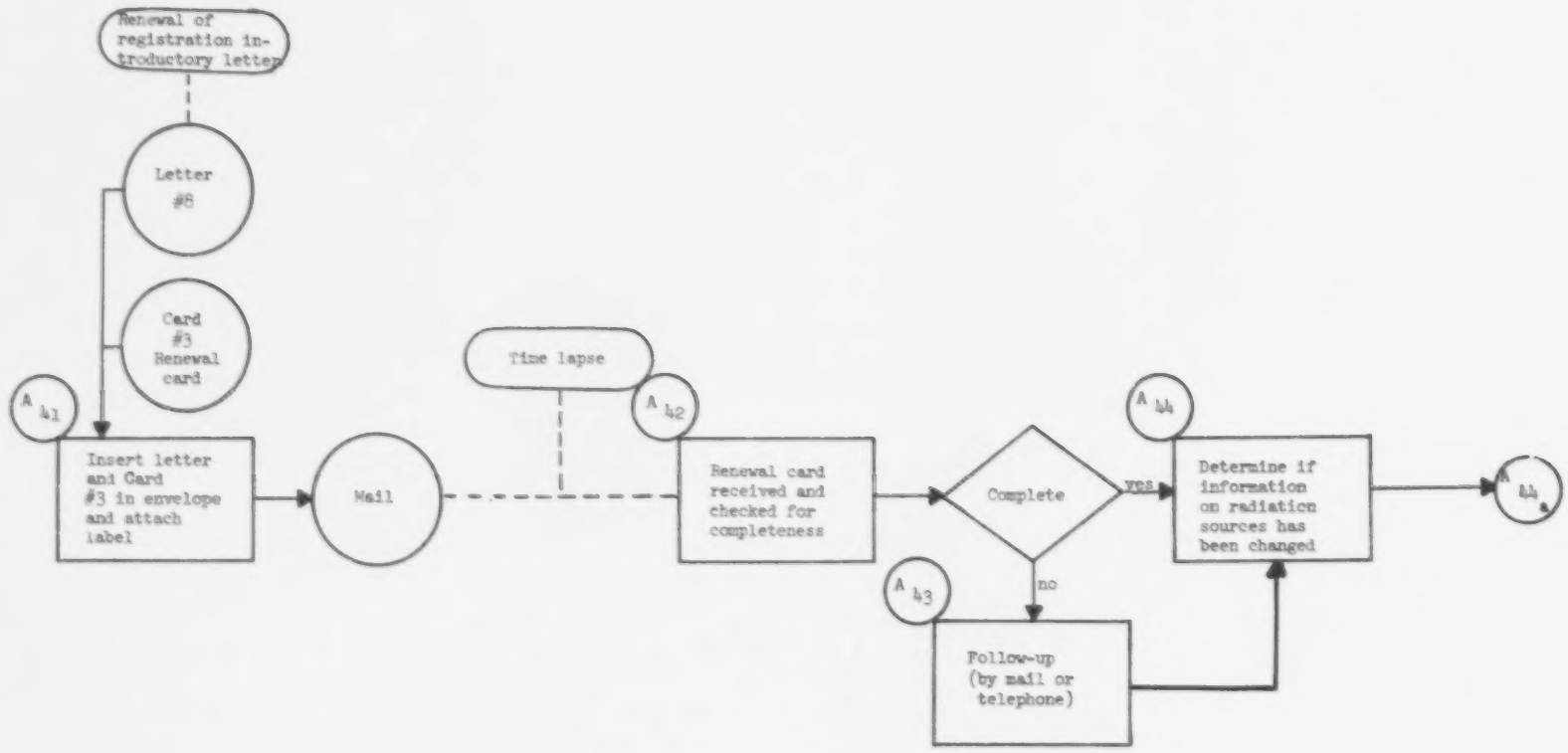
IBM 077838

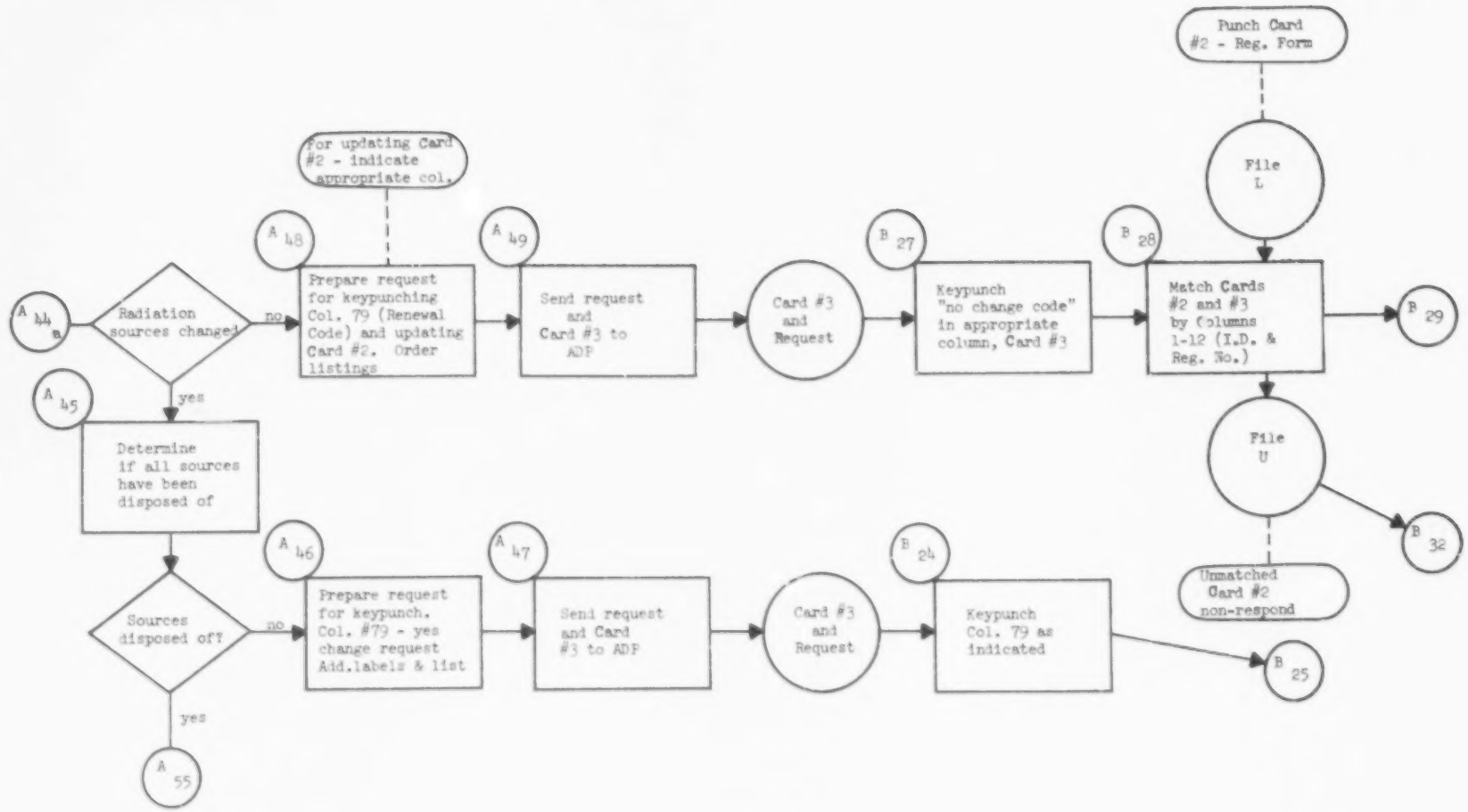
Form Approved
Budget Bureau No. 68-R892

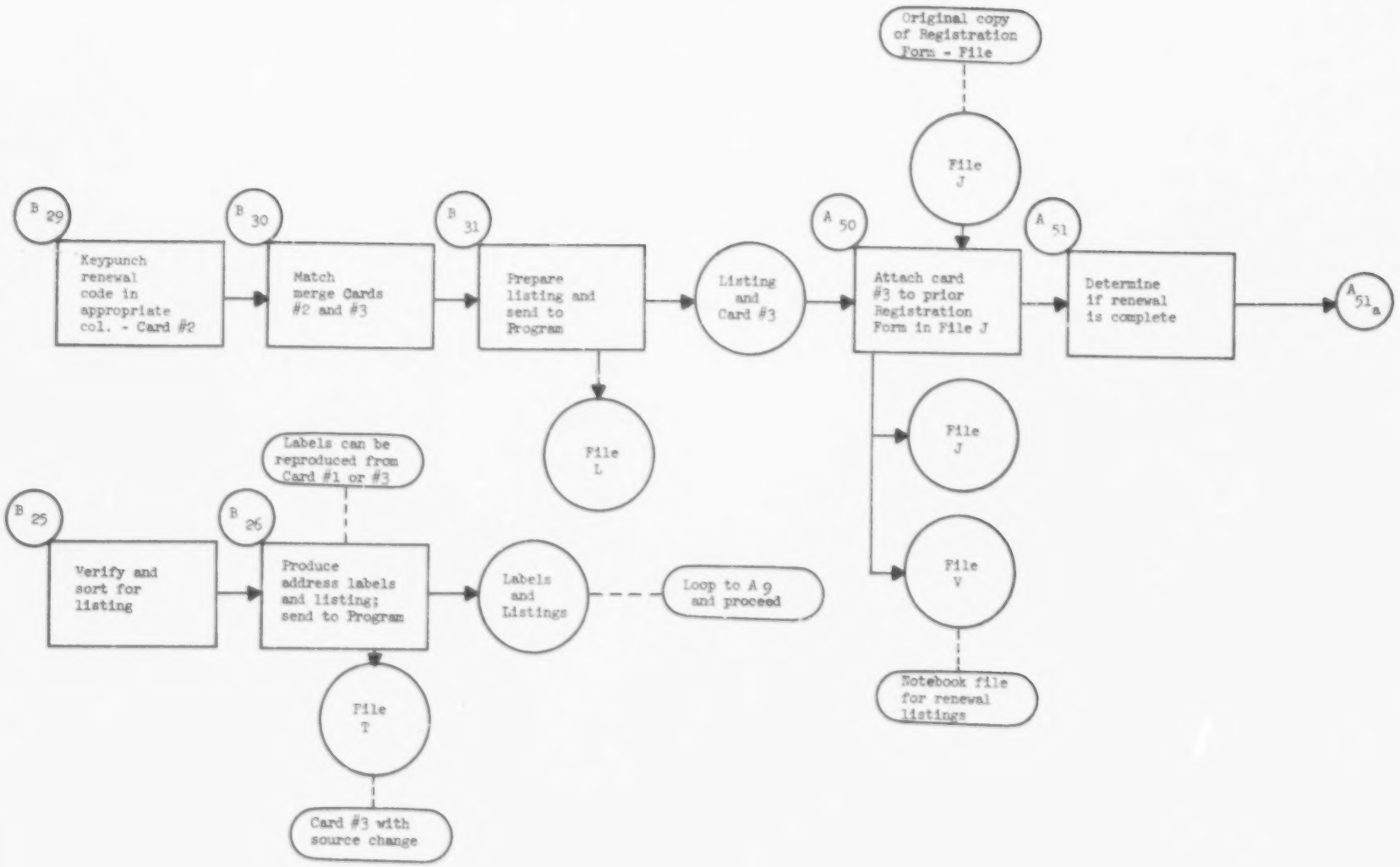
Figure 5. Renewal of Registration Card

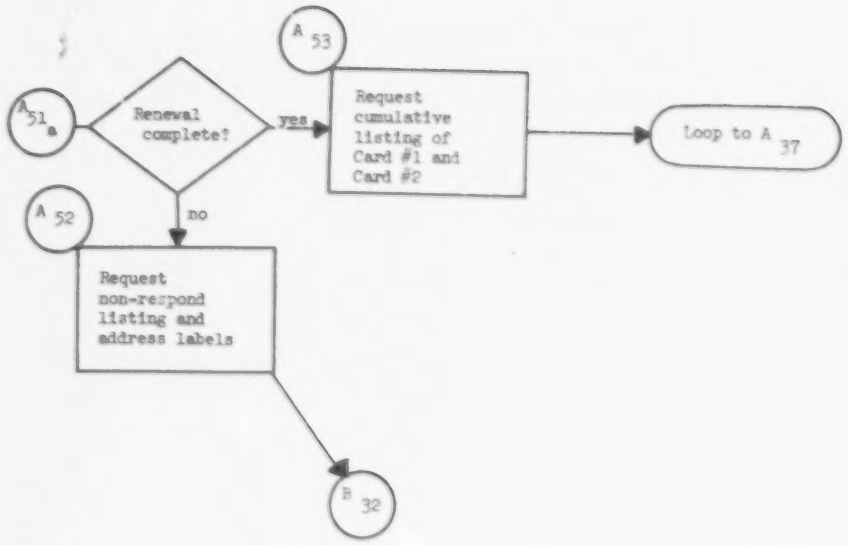
Flow Chart of Renewal Activities

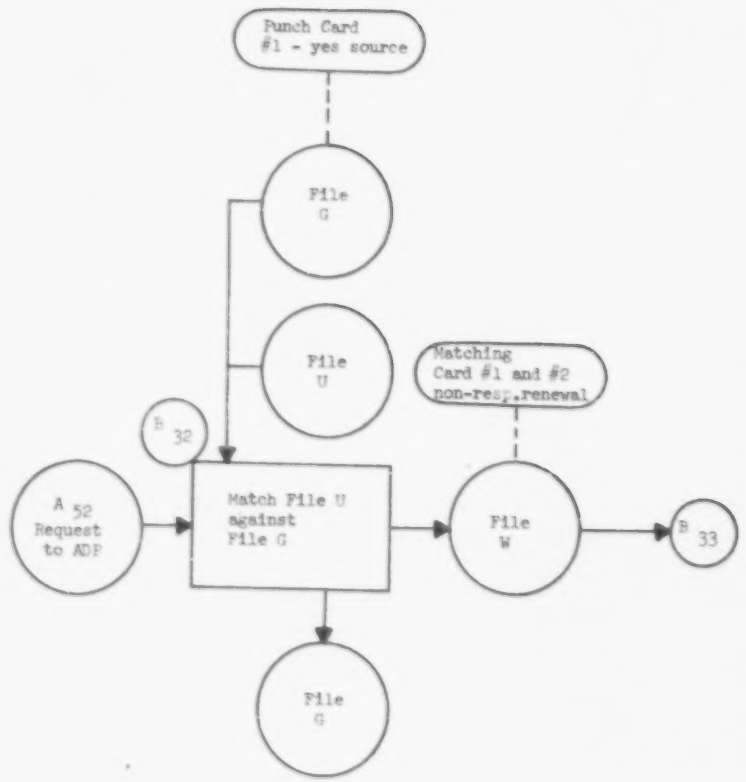

Registration renewal card
Blank Card #3
Card #1 Yes source
File G
Card #3 Renewal of registration card
A 39
B 22
B 23
A 40
Rubber stamp or Numbering machine
Initiate registration renewal
Request preparation of Card #3 from ADP
Request to ADP
Duplicate info. on Card #1 to Card #3, Columns 1-12 and 14-78 Punch I.D. code "3" in Col. 13
Prepare address labels and send to program with punched Card #3
Labels Card #3 to Prog.
Stamp current year on Card #3
A 41
File G
File F (Card #1) No source
File F
A 39a
B 22a
Request preparation of a new Card #1 for File F
Request to ADP
Duplicate Columns 7-78 from File F to blank Inquiry card
Loop to B 2

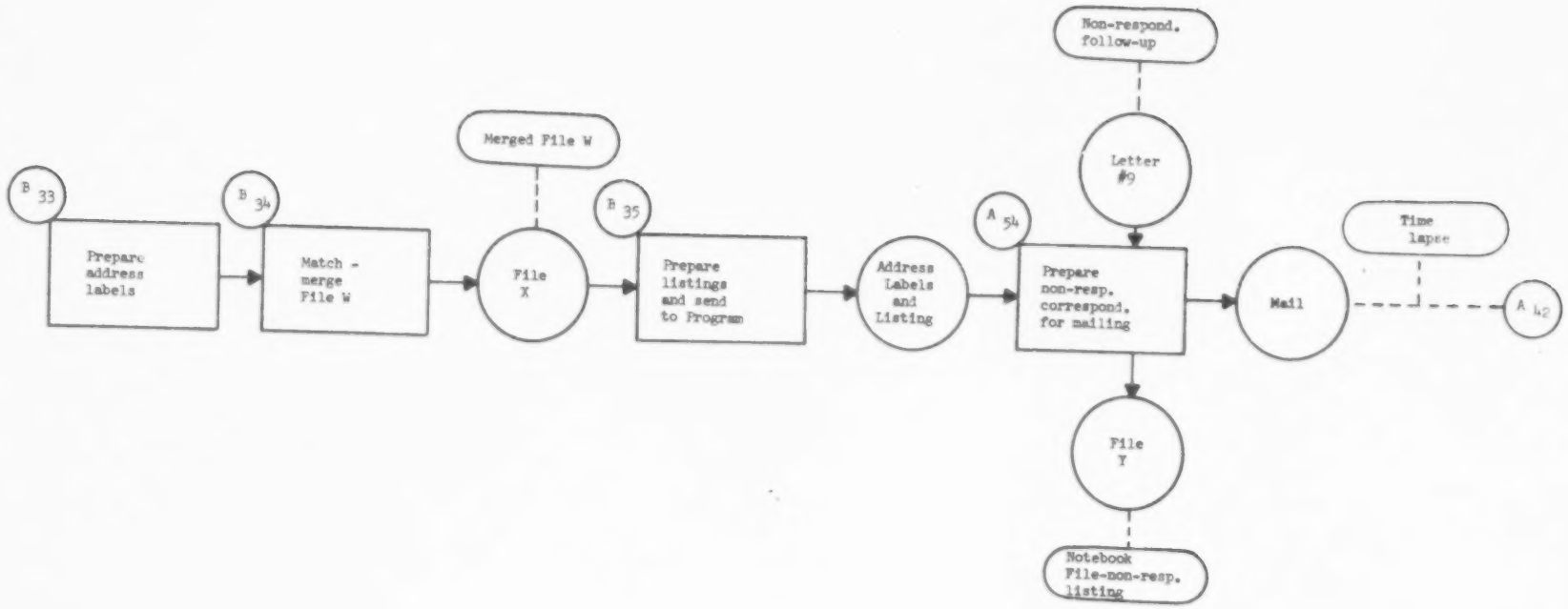

Renewal of registration introductory letter
Letter #8
Card #3 Renewal card
A 41
Insert letter and Card #3 in envelope and attach label
Mail
Time lapse
A 42
Renewal card received and checked for completeness
Complete
YES
no
A 44
Determine if information on radiation sources has been changed
A 44a
A 43
Follow-up (by mail or telephone)

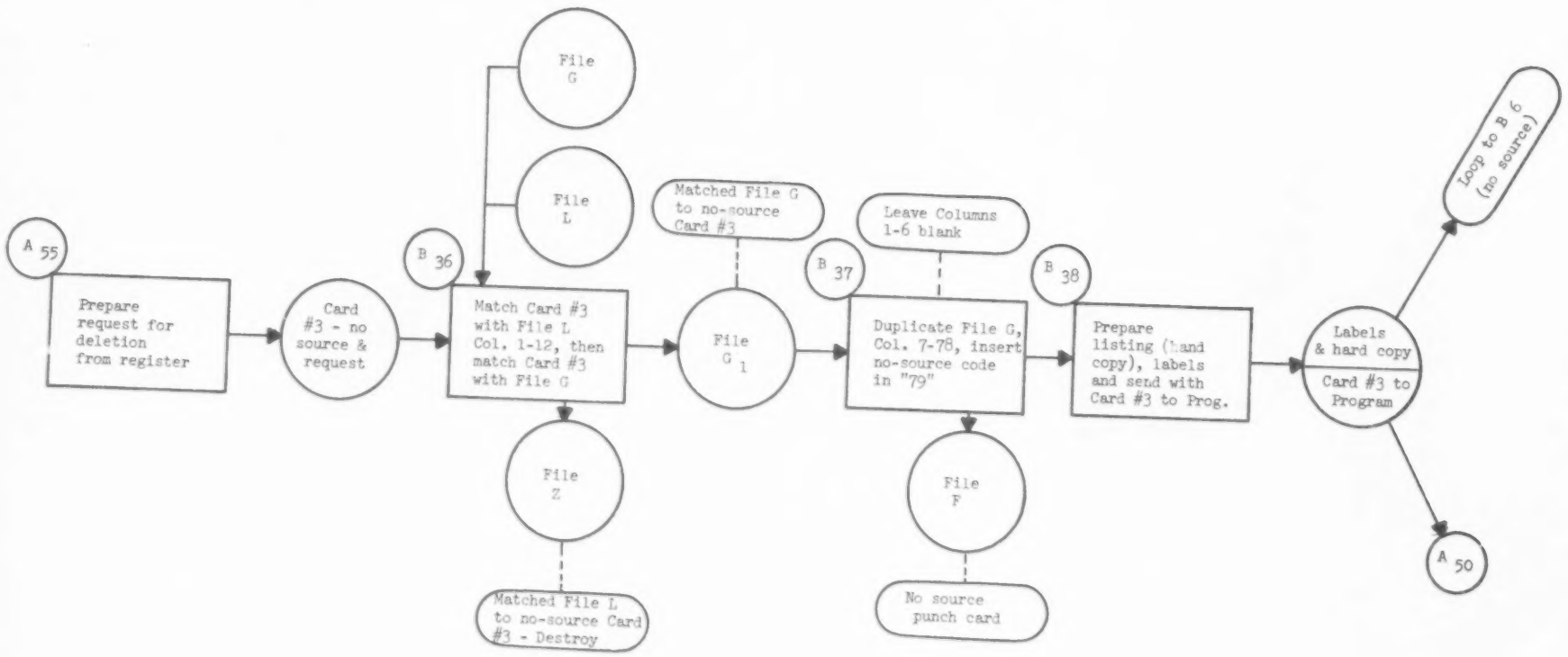

Punch Card
#2 - Reg. Form
File
L
For updating Card
#2 - indicate
appropriate col.
A 48
A 49
B 27
B 28
A 44
a
Radiation
sources changed
no
Prepare request
for keypunching
Col. 79 (Renewal
Code) and updating
Card #2. Order
listings
Send request
and
Card #3 to
ADP
Card #3
and
Request
Keypunch
"no change code"
in appropriate
column, Card #3
Match Cards
#2 and #3
by Columns
1-12 (I.D. &
Reg. No.)
B 29
A 45
yes
Determine
if all sources
have been
disposed of
File
U
B 32
A 46
A 47
B 24
Unmatched
Card #2
non-respond
Sources
disposed of?
no
Prepare request
for keypunch.
Col. #79 - yes
change request
Add.labels & list
Send request
and Card
#3 to ADP
Card #3
and
Request
Keypunch
Col. 79 as
indicated
B 25
yes
A 55


Original copy of Registration Form - File
File J
B 29
Keypunch renewal code in appropriate col. - Card #2
B 30
Match merge Cards #2 and #3
B 31
Prepare listing and send to Program
File L
Listing and Card #3
A 50
Attach card #3 to prior Registration Form in File J
A 51
Determine if renewal is complete
A 51a
File J
File V
Notebook file for renewal listings
Labels can be reproduced from Card #1 or #3
B 25
Verify and sort for listing
B 26
Produce address labels and listing; send to Program
Labels and Listings
Loop to A 9 and proceed
File T
Card #3 with source change


A 53
A 51
Renewal complete?
yes
Request cumulative listing of Card #1 and Card #2
Loop to A 37
A 52
no
Request non-respond listing and address labels
B 32


Punch Card #1 - yes source
File G
File U
Matching Card #1 and #2 non-resp.,renewal
B 32
A 52 Request to ADP
Match File U against File G
File W
B 33
File G


B 33
Prepare address labels
B 34
Match - merge File W
Merged File W
File X
B 35
Prepare listings and send to Program
Address Labels and Listing
A 54
Non-respond. follow-up
Letter #9
Prepare non-resp. correspond. for mailing
Mail
Time lapse
A 42
File Y
Notebook File-non-resp. listing


A 55
Prepare request for deletion from register
Card #3 - no source & request
B 36
File G
File L
Match Card #3 with File L Col. 1-12, then match Card #3 with File G
Matched File G to no-source Card #3
File G 1
B 37
Leave Columns 1-6 blank
Duplicate File G, Col. 7-78, insert no-source code in "79"
B 38
Prepare listing (hand copy), labels and send with Card #3 to Prog.
Labels & hard copy
Card #3 to Program
Loop to B 6 (no source)
A 50
File Z
Matched File L to no-source Card #3 - Destroy
File F
No source punch card

Narrative of Renewal Activities

A-39. Prepare a work request for ADP to keypunch card #3 for renewal of registration.

B-22. Duplicate the information on card #1; columns 1-12, and 14-78 to card #3. Punch the card I.D. number (3) in column 13.

B-23. Prepare address labels from card #1 and send card #3 and labels to program.

A-40. Using a rubber stamp or numbering machine, stamp the current year on card #3.

A-41. Prepare introductory letter (#8) and insert in envelope with card and mail.

A-39a. Request preparation for ADP, of a new card #1 for no source deck of potential users for possible change of status.

B-22. Using the no-source deck, duplicate columns 7-78 to a blank inquiry card; card #1.

LOOP TO B-2. AND PROCEED. If when this card is returned, there are still no sources, destroy card after hard copy is prepared.

Renewal Card is Received:

A-42. Check for completeness.

A-43. If not complete, follow-up either by mail or telephone.

A-44. If complete, determine if the information on radiation sources has been changed.

A-45. If change has occurred, determine if all sources have been disposed of. If yes, proceed to activity A-55.

A-46. If change has occurred and sources not disposed of, prepare a request for ADP to keypunch a yes code (1) in column 79, requesting hard copy and labels.

A-47. Send request and card #3 to ADP.

B-24. Keypunch column 79 as requested.

B-25. Verify and sort by columns 1-12 for hard copy listing.

B-26. Produce address labels and hard copy; send to Program.

LOOP TO A-9 AND PROCEED.

A-48. Card complete, no radiation source change, prepare request to ADP to keypunch a no change code (2) in column 79, update card #2 and produce hard copy.

A-49. Send request and card #3 to ADP.

B-27. Keypunch card #3 as requested.

B-28. To update card #2; match card #2 with card #3 by identification number and registration number; columns 1-12.

B-29. Keypunch renewal date in card #2 (columns 73-74, 77-78, or 79-80), which ever field is appropriate for that year's renewal.

B-30. Match merge cards #2 and #3.

B-31. Prepare hard copy listings and send to program.

A-50. Attach card #3 to the original copy of this registrants initial registration form and keep on file. File hard copy listings in notebook.

A-51. Determine if renewal is complete.

A-52. Renewal not complete, request from ADP, non-respondent hard copy and labels. Send to ADP and proceed to B-32.

A-53. Renewal complete, request cumulative listings of cards #1 and #2.

LOOP TO A-37.

Follow-up:

B-32. Match card #1 with non-respondent deck of card #3 by columns 1-12.

B-33. Prepare address labels from card #1.

B-34. Merge matching cards #1 and #3.

B-35. Prepare hard copy and send to Program with labels.

A-54. Prepare non-respondent correspondence for mailing; letter #9. File hard copy.

Deletion Activity:

A-55. Prepare request for ADP to delete from register cards attached indicating disposal of sources. Send to ADP.

B-36. Match card #3 with card #2 and card #1 by columns 1-12. Destroy #2 cards.

B-37. Take blank card #1, leave columns 1-6 blank, duplicate columns 7-78 from old card #1 and punch no source code (2) in column 79.

B-38. Prepare listings and labels, send to Program with card #3.

LOOP TO B-6 FOR NO SOURCE ACTIVITY.

LOOP TO A-50 FOR DISPOSAL OF CARD #3.

PHASE IV - DATA UTILIZATION

Upon completion of the registration of radiation sources, a series of statistical tables can be produced by means of automatic data processing equipment. These tables can be used to compute the man-equivalents, time, and money needed for the inspection program. For example, assuming that the state regulations require registration of sources every two years and it is intended that inspection of all sources be accomplished prior to re-registration, then the following formula can be used to determine personnel needs and, thus, budget figures for the program.

$$\frac{A}{B} \div C = D$$

Where

A = Number of tubes (5500) or sources (520) in the state as revealed by the registration project.

B = Number of tubes (6) or sources (3) that can be surveyed by one man in one day.

C = Number of working days in which surveys must be completed (2 years or 480 working days).

D = Number of man-equivalents

$$\frac{5500}{6} \div 480 = \frac{916.6}{480} = 1.909 \text{ man-equivalents for tubes}$$

$$\frac{520}{6} \div 480 = \frac{173.3}{480} = 0.361 \text{ man-equivalents for sources}$$

Total man-equivalents = 1.909 + 0.361 = 2.27 man-equivalents

This indicates that it will be necessary to hire two full-time and one part-time personnel if the survey program is to be completed within a two-year period. A personnel budget can also be determined from this figure (2.27).

In preparing survey schedules, Tables 10 and 11 should be consulted to determine problem areas and set priorities. Other figures obtained from the statistical tables can be used in reports to advisory committees. professional groups, etc., and are especially useful in justifying fiscal budget requirements for the radiological health program.

1. FREQUENCY DISTRIBUTION OF THE NUMBER OF FACILITIES BY TYPE OF USE OR PRACTICE

Type of Use or Practice	No. of Facilities
Medical	
Dental	
Chiropractic	
Osteopathy	
Veterinary	
Podiatry	
Industry	
Research	
Other	
TOTALS	

2. FREQUENCY DISTRIBUTION OF THE NUMBER OF FACILITIES BY TYPE OF FACILITY

Type of Facility	No. of Facilities
Private Office	
Hospital	
Clinic	
Mobile	
Educational Institution	
Industrial	
Other	
TOTALS	

3. FREQUENCY DISTRIBUTION OF TOTAL NUMBER OF TUBES PER FACILITY

No. Tubes	1	2	3	4	5	6	7	8	9	etc.	Totals
Facilities											

Total Number Tubes:

4. TOTAL RADIUM SOURCES BY NUMBER OF SOURCES PER FACILITY

No. Sources	No. Facilities	Total Radium Sources in State
Totals		

5. TOTAL ACTIVITY OF RADIUM SOURCES IN STATE

Total Activity of Radium Sources in State
Reported by _____ Facilities =

Teletherapy Units in State =
Sources used in Industrial Radiography =

Licensed Isotopes =
Non-Licensed Isotopes =

6. NUMBER OF EDUCATIONAL AND INDUSTRIAL UNITS PER FACILITY

Types of Units	No. Units 1	2	3	4	5	Totals
X-ray Dif.						
Electron Micro.						
Particle Accelerators						
TOTALS						

7. NUMBER OF X-RAY UNITS PER FACILITY BY TYPE OF UNIT

	1	2	3	4	5	6	7	etc.	Totals
Radiographic									
Fluoroscopic									
Combination									
P. F.									
X-ray Therapy									
Dental									
TOTALS									

8. NUMBER OF X-RAY UNITS PER FACILITY BY TYPE OF FACILITY

Type of Facility	0	1	2	3	4	5	6	etc.	Total	No. of Facilities	Total Units	Units Per Facility
Unknown												
Private Office												
Hospital												
Clinic												
Mobile												
Educational Inst.												
Industrial												
Other												
TOTALS												

9. NUMBER OF X-RAY UNITS PER FACILITY BY TYPE OF PRACTICE

Type of Practice	0	1	2	3	4	5	6 etc.	Total	No. of Facilities	Total Units	Units Per Practice
Medical											
Dental											
Chiropractors											
Osteopathy											
Veterinary											
Podiatry											
Industrial											
Research											
Other											
TOTALS											

10. FREQUENCY DISTRIBUTION OF TYPE OF PRACTICE BY COUNTY

Code	County	Medical	Dental	Chiropractic	Osteopathy	Veterinary	Podiatry	Industry	Research	Other	TOTALS
001	Adams										
002	Butte										
003	Cedar										
etc.											

11. FREQUENCY DISTRIBUTION OF TYPE OF FACILITY BY COUNTY

Code	County	Unknown	Private Office	Hospitals	Clinic	Mobile	Educ. Institution	Industrial	Other	TOTALS
001	Adams									
002	Butte									
003	Cedar									
etc.										

APPENDIXES

Appendix A

Form Letter 1 - Initial Inquiry

Dear :

The Division of Radiological Health of the Department of Health is responsible for the maintenance of an accurate register of all persons or groups, in the State, who own or possess radiation sources.

We are enclosing a postcard inquiring of your status; possessor or non-possessor of radiation sources, to be used for establishing a mailing list of registrants.

We would appreciate your cooperation in completing and returning this card at your earliest convenience.

Sincerely yours,

Appendix B

Form Letter 2 - Registration Materials

Dear :

The , of the Department of Health, has received your completed inquiry card indicating that you are an owner or possessor of radiation sources.

We are enclosing four (4) sets of forms with Instruction Sheets for the registration of your facility (ies). Complete one set of forms for each facility housing a radiation source(s) and return those that are not used. We will be happy to furnish additional forms, if needed.

Please be sure to read the enclosed Instruction Sheet prior to completing these forms. If you find it necessary to contact us, include your identification number located in the upper right corner of the registration forms for proper identification.

We would appreciate your cooperation in completing these forms and returning them at your earliest convenience.

Sincerely yours,

Appendix C

Form Letter 3 - Letter of Appreciation (Non-possessor)

Dear :

We wish to thank you for your cooperation in the Registration of Radiation Sources that is being conducted in our State at this time.

You have indicated on the inquiry card that you do not possess any radiation sources at this time. In the future, if you should obtain a source(s), please fill out the enclosed Change of Status card and drop it in the mail to initiate the registration of your sources.

If we can assist you in the interest of radiation protection, please be sure to contact us.

Sincerely yours,

Appendix D

Form Letter 4 - Initial Inquiry Follow-up

Dear :

The Division , of the State Department of Health has been given the task of establishing and maintaining a register of all owners or possessors of radiation sources in this State.

On , we mailed you a postcard inquiring of your status. The return of this card is necessary to establish a mailing list of registrants. At your earliest convenience, would you please check the appropriate boxes and mail this card to us so that the registration program can be completed by our deadline date of

Your cooperation will be appreciated.

Sincerely yours,

Appendix E

Form Letter 5 - Letter of Appreciation (Possessor)

Dear :

We wish to thank you for your cooperation in the Registration of Radiation Sources that is being conducted in our State at this time.

We have completed the registration of your facility and are enclosing your copy of the form, along with a Change of Status card for future use. If you should find it necessary to contact us at anytime, please include your registration number with your name and address for quick reference.

In the event that you dispose of your radiation sources, we would appreciate being notified. Please fill out the enclosed Change of Status card, and your name will be removed from the register.

If we can be of assistance to you, please feel free to contact us.

Sincerely yours,

Appendix F

Form Letter 6 - Letter of Appreciation (Co-owner)

Dear :

We wish to thank you for your cooperation in the Registration of Radiation Sources that is being conducted in our State at this time.

We have completed the registration of radiation sources of which you are a co-owner. Your facility has been assigned the following registration number: . A copy of the registration form has been sent to for your files.

We are enclosing a Change of Status card for future use. In the event that you dispose of your radiation sources, please fill out this card, and we will remove you from the register.

If we can be of assistance to you, please feel free to contact us.

Sincerely yours,

Appendix G

Change of Status Notice

RADIATION SOURCE REGISTRATION

IDENTIFICATION NUMBER

CHANGE OF STATUS NOTICE

To indicate a change of status relative to the registration of radiation sources please check the appropriate box below and forward to address shown on the reverse side of this card.

☐ **Please void assigned Registration No._____, as I no longer own or possess radiation sources.**

☐ **Please forward necessary forms for the registration of recently acquired sources.**

☐ **Please change address of record under Registration No. _____ ____as follows:**

NAME _____
(Last Name) *(First Name)* *(Middle Initial)*

TITLE 1☐ **Doctor,** 2☐ **Mr.** 3☐ **Mrs.** 4☐ **Miss**

ADDRESS _____
(Number) *(Street)*

_____
(City) *(State)* *(Zip Code)*

PHS-4809-4 (3-66)

FORM APPROVED BUDGET BUREAU NO 68-R892

Appendix H

Form Letter 7 - Registration Follow-up

Dear :

On , we mailed you the necessary forms for the registration of all radiation sources in your possession.

We would appreciate your cooperation in completing these forms and returning them at your earliest convenience.

Please feel free to contact us if you have any questions.

Sincerely yours,

Appendix I

Form Letter 8 - Renewal Introduction

Dear :

The , of the Department of Health is required by law to register all radiation sources every years. Therefore, we are enclosing a "Renewal of Registration" card for your use.

Please complete this card and return it to us at your earliest convenience.

Sincerely yours,

Appendix J

Form Letter 9 - Renewal Follow-up

Dear :

On , we mailed you a "Renewal of Registration" card to register the radiation sources in your possession.

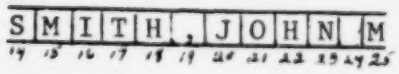
The Registration of Radiation Sources every years is a legal requirement in this State.

Please complete this card and return to us, so that your registration can be completed prior to the deadiine date of .

Sincerely yours,

Appendix K

Initial Inquiry Card Coding and Punching Instructions

Item No., Item & Remarks	Card Column	Code
1. Registration Number	1-6	Leave Blank, this field will be coded automatically at a later date.
2. Identification Number	7-12	As Assigned
3. Card Identification	13	Code "1", unless the registration information is to be incorporated into a storage file of inspection and/or survey data utilizing the Public Health Service survey forms, then code this card "5".
4. Last Name, First Name & Middle Initial	14-33	Start coding (Last Name First) in column 14, after the last name, place a comma in the next column and proceed by coding the first name, blank column and middle initial. As shown below:  Be sure and leave one column blank between the first name and middle initial. A Company name or Hospital name can be abbreviated, if necessary and if there is a shortage of columns for the first name, the first initial may be used.

Item No., Item & Remarks	Card Column	Code
5. Title	34	1-Doctor 2-Mister 3-Mrs. 4-Miss
6. Address: Street No. & Name	35-55	As Reported; leave a blank column between each part of the address, and abbreviate when necessary. Start coding in column 37.
7. City & State	56-72	As Reported; abbreviate if necessary. Leave a blank column between each.
8. Zip Code	73-77	As Reported
9. Type of Use or Practice	78	1-Medical 2-Dental 3-Chiropractic 4-Osteopathy 5-Veterinary 6-Podiatry 7-Industry 8-Research 9-Other (Specify)
10. Do you own or possess any of the following radiation sources? 1. X-ray Equipment 2. Other Radiation Producing Equipment 3. Radium 4. Licensed Isotopes (AEC or State) 5. Other Non-licensed Isotopes	79	1-Yes 2-No

Item No., Item & Remarks	Card Column	Code
11. Multiple Line Print	80	B-2 line address C-3 line address (This is an instruction code to the EAM Equipment)

NOTE: Leave all unused cloumns blank.

Appendix L

Data Report Form
Coding and Punching Instructions

Item No., Item & Remarks	Card Column	Code
1. Registration Number	1-6	As Assigned
Identification Number	7-12	Assigned Number on Inquiry Card.
Card Number	13	Code "2", unless the registration information is to be incorporated into a storage file of inspection and/or survey data utilizing the Public Health Service survey forms, then code this card "6".
Date	14-17	Code Month and Year. For Example: June, 1964 0 6 6 4
State County City	18-19	From I.B.M. Reference Manual, "Numerical Code for States, Counties & Cities of the United States."
2. Name of Owner or Possessor		Do Not Code
3. Location of Radiation Sources		Do Not Code
4. City, County and State		Do Not Code
5. Name and Title of Person to Contact for Further Information		Do Not Code
6. Are These Radiation Sources Co-owned?	27	1-Yes 2-No

Item No., Item & Remarks	Card Column	Code
7. Type of Use or Practice	28	1-Medical 2-Dental 3-Chiropractic 4-Osteopathy 5-Veterinary 6-Podiatry 7-Industry 8-Research 9-Other(specify)
8. Specialty	29-30	See Back of Form
9. Person Responsible for Radiation Safety		Do Not Code
10. Type of Facility	31	1-Private Office 2-Hospital 3-Clinic 4-Mobile 5-Educational Institution 6-Industrial 7-Other
11. Radiation Producing Equipment:		
A. Medical Type		
1. Radiographic	32-33	As Reported
2. Fluoroscopic	34-35	As Reported
3. R. & F. Combination	36-37	As Reported
4. Photofluorographic	38-39	As Reported
Total Number of Units (Tubes)	40-41	As Recorded. If not recorded we will assume that there is one tube per unit. Record the sum of the Radiographic, Fluoroscopic and R.& F. Combination Units.
5. X-ray Therapy	42-43	Record Total No. of Tubes
B. Dental Type	44-45	Record Total No. of Units

Item No., Item & Remarks	Card Column	Code
C. Industrial & Educational Equipment		(Record No. of Each Type)
1. X-ray Diffraction Units	46-47	01-98 As Reported 99 99 or More
2. Electron Microscopes	48-49	
3. Particle Accelerators	50-51	
4. Other (specify)		Do Not Code
5. No. of Fixed Units	52-53	As Reported
6. No. of Portable Units	54-55	As Reported
12. Radioactive Materials:		
A. Radium	56	1-Yes 2-No
1. No. of Radium Sources	57-59	As Reported
2. Total Activity of Radium Sources	60-64	As Reported (In milligrams)
B. Number of Teletherapy Apparatus	65-66	As Reported
C. Number of Sources Used in Industrial Radiography	67-68	As Reported
D. Licensed Isotopes?	69	1-Yes 2-No
E. Other Non-Licensed Isotopes	70	1-Yes 2-No
13. Any other Radiation Sources?		Do Not Code

NOTE: Card columns 73 - 80 in fields of two columns each, are reserved for renewal dates.

ADDENDUM

MODIFICATIONS IN THE SYSTEM

The Registration of Radiation Sources System was tested in two states; and as a result of these field trials, several modifications were found to be in order. The Registration Form proved to be confusing to the registrants who appeared to have difficulty in identifying and filling out only those items that pertained to their facility. In many instances, the forms were cross coded due to the lack of specific identification of each item. Also, a portion of the radioactive materials section was determined to be of little value.

Based on the problems encountered in the field trials, the following Registration Form (Data Report Form) and Coding and Punching Instructions for that form were designed.

RADIATION SOURCE REGISTRATION PROGRAM

81

DATA REPORT

(DO NOT WRITE IN THIS SPACE)

1.

REGISTRATION NO.						IDENTIFICATION NO.						CARD NO.	DATE				STATE		COUNTY					CITY					POP. GROUP	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26			27	28	

GENERAL INFORMATION

2. NAME AND LOCATION OF OWNER OR POSSESSOR OF RADIATION SOURCES (Including Zip Code)

3. ARE RADIATION SOURCES CO-OWNED? IF YES, GIVE NAME (S) OF CO-OWNER (S)

A. _____

B. _____

C. _____

1. ☐ YES
2. ☐ NO

29

4. Types of use or practice: (30-34)

1. ☐ Medical
2. ☐ Dental
3. ☐ Chiropractic
4. ☐ Osteopathy
5. ☐ Veterinary
6. ☐ Podiatry
7. ☐ Industry
8. ☐ Research
9. ☐ Other (Specify) _____

5. Type Of Facility: (35)

1. ☐ Private Office
2. ☐ Hospital
3. ☐ Clinic
4. ☐ Mobile
5. ☐ Educational Institution
6. ☐ Industrial
7. ☐ Other (Specify) _____

NUMBER OF RADIATION PRODUCING MACHINES

6. A. RADIOGRAPHIC X-RAY ONLY:
   1. MEDICAL (36-37) _____
   2. INDUSTRIAL (38-39) _____

   B. FLUOROSCOPIC X-RAY ONLY:
   1. MEDICAL (40-41) _____
   2. INDUSTRIAL (42-43) _____

   C. RADIOGRAPH & FLUOROSCOPE COMBINATION: (44-45) _____

   D. PHOTOFLUOROGRAPHIC X-RAY (46-47) _____

   E. X-RAY THERAPY (48-49) _____
   TOTAL NO. TUBES (50-51) _____

   F. X-RAY DIFFRACTION (52-53) _____

   G. PARTICLE ACCELERATORS (54-55) _____

   H. ELECTRON MICROSCOPES (56-57) _____

   I. OTHER (SPECIFY) (58-59) _____

RADIOACTIVE MATERIALS (NON-LICENSED ONLY)

7. A - RADIUM OWNED OR LEASED?

1. OWNED	(60)	1. ☐ YES	2. ☐ NO	AMOUNT (61-65) _____ mg
2. LONG-TERM LEASED	(66)	1. ☐ YES	2. ☐ NO	AMOUNT (67-71) _____ mg
3. LEASED ON PER CASE BASIS	(72)	1. ☐ YES	2. ☐ NO	
B. RADON SEEDS USED?	(73)	1. ☐ YES	2. ☐ NO	
C. ACCELERATOR PRODUCED ISOTOPES USED?	(74)	1. ☐ YES	2. ☐ NO	

REGISTRATION DOES NOT IMPLY APPROVAL OR DISAPPROVAL OF THIS FACILITY NOR IS IT A LICENSE

8. CERTIFICATION:

To the best of my knowledge the above information is true and correct.

NAME (TYPE OR PRINT)	SIGNATURE
TITLE	DATE

PHS-4809-3
REV. 8-67

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
PUBLIC HEALTH SERVICE

FORM APPROVED
BUDGET BUREAU NO. 68-R892

Data Report Form
Coding and Punching Instructions

Item No., Item & Remarks	Card Column	Code
1. Registration Number	1-6	As Assigned
Identification Number	7-12	Assigned Number on Inquiry Card.
Card Number	13	Code "2" unless the registration information is to be incorporated into a storage file of inspection and/or survey data utilizing the Public Health Service survey forms, then code this card "6".
Date	14-17	Code Month and Year. For example: June 1964
State	18-19	From I.B.M. Reference Manual, "Numerical Code for States, Counties, & Cities of the United States."
County	20-22	
City	23-26	
Population Group	27-28	From I.B.M. Reference Manual, "Numerical Code for States, Counties, & Cities of the United States."

0	6	6	4

General Information

2. Name & Location of Owner or Possessor of Radiation Sources.		Do Not Code
3. Are Radiation Sources Co-owned?	29	1 - Yes 2 - No

4. Type of Use or Practice	30-34	1 - Medical 2 - Dental 3 - Chiropractic 4 - Osteopathy 5 - Veterinary 6 - Podiatry 7 - Industry 8 - Research 9 - Other (Specify)
5. Type of Facility	35	1 - Private Office 2 - Hospital 3 - Clinic 4 - Mobile 5 - Educational Institution 6 - Industrial 7 - Other (Specify)
6. A. Radiographic Only:		
1. Medical	36-37	As Reported
2. Industrial	38-39	As Reported
B. Fluoroscopic Only:		
1. Medical	40-41	As Reported
2. Industrial	42-43	As Reported
C. Radiographic and Fluoroscopic Combination:		
1. Medical	44-45	As Reported
2. Industrial	46-47	As Reported
D. Photofluorographic X-ray:	48-49	As Reported
E. X-ray Therapy	50-51	As Reported
TOTAL NUMBER TUBES (A-E)	52-53	As Recorded. If not recorded, we will assume that there is one tube per unit. Record the sum of the Radiographic, Fluoroscopic, and R. & F. Combination Units.

F.	X-ray Diffraction	54-55	As Reported
G.	Particle Accelerators	56-57	As Reported
H.	Electron Microscopes	58-59	As Reported
I.	Other	60-61	As Reported

Radioactive Materials

7. A.	Radium Owned or Leased?		
	1. Owned	62	1 - Yes 2 - No
	Amount	63-67	In Milligrams (Round off all decimals)
	2. Long-term Leased?	68	1 - Yes 2 - No
	Amount	69-73	In Milligrams (Round off all decimals)
	3. Leased on per Case Basis	74	1 - Yes 2 - No
B.	Radon Seeds Used	75	1 - Yes 2 - No
C.	Accelerator Produced Isotopes Used?	76	1 - Yes 2 - No

The ABSTRACT CARDS below are designed to facilitate document retrieval using Coordinate Indexing. They provide space for an accession number (to be filled in by the user), suggested key words, bibliographic information, and an abstract.

The Coordinate Index concept of reference material filing is readily adaptable to a variety of filing systems. Coordinate Indexing is described in the publication "IBM Data Processing Techniques--Index Organization for Information Retrieval (C 20-8062)." Copies are available through IBM Branch Offices.

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